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PATENT
Docket No. 54655US009

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant(s): Ronald S. STEELMAN et al.) Group Art Unit: 1722
Serial No.: 09/479,648)
Confirmation No.: 3344)
Filed: 7 January 2000)
For: METHOD OF APPLYING ADHESIVE COATED FILM)

APPELLANTS' BRIEF ON APPEAL

Commissioner for Patents
Mail Stop Appeal Brief – Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Brief is presented in support of the Appeal filed January 23, 2004, from the final rejection of claims 29-31, 34-36, 38-40, and 57-61 of the above-identified application under 35 U.S.C. § 112, second paragraph, (claims 29-31, 34-36, 38-40, and 57-61), under 35 U.S.C. § 102 (a/b/e) as anticipated by or, in the alternative under 35 U.S.C. § 103 (a) (claims 29-31, 34-36, 40, 57-59, and 61), under 35 U.S.C. § 103 (a) (claims 38, 39 and 57-61), and 35 U.S.C. § 102 (b) (claim 30) as set forth in the Final Office Action mailed September 23, 2003.

This Brief is being submitted in triplicate, as set forth in 37 C.F.R. § 1.192(a). A check to cover the fee for filing this Brief under 37 C.F.R. § 1.17(f) is enclosed herewith.

I. REAL PARTY IN INTEREST

The real party in interest of the above-identified patent application is the assignee, 3M Innovative Properties Company.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences known to Appellants' Representatives that will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Of the originally filed claims 1-33, claims 34-66 were added and claims 1-28, 32, 33, 37, 41-56, and 62-66 were cancelled during prosecution of the application. Claims 29-31, 34-36, 38-40, and 57-61 are currently pending and are the subject of this Appeal (see Appendix I).

IV. STATUS OF AMENDMENTS

The present application was filed January 7, 2000 with originally filed claims 1-33.

A nonfinal Office Action (a copy of which is enclosed as Appendix II) was mailed from the United States Patent and Trademark Office (USPTO) on July 17, in which the disclosure was objected to because of certain alleged informalities; the specification was objected to as allegedly failing to provide proper antecedent basis for the subject matter; claims 1-33 were rejected under 35 U.S.C. § 112, second paragraph; claims 20-28 were rejected under 35 U.S.C. § 102 (b), or alternatively under 35 U.S.C. § 103 (a), over Gladen (U.S. Patent No. 3,562,059); claims 1-19, 29, and 32-33 were rejected under 35 U.S.C. § 102 (b), or alternatively under 35 U.S.C. § 103 (a), over either Raabe et al. (U.S. Patent No. 4,370,374) or Hargarter et al. (U.S. Patent No. 5,674,600); claims 30-31 were rejected under 35 U.S.C. § 102 (b), or alternatively under 35 U.S.C. § 103 (a), over Ullmann et al. (U.S. Patent No. 6,126,011); and claims 1-19, 29, and 32-33 were rejected under 35 U.S.C. § 103 (a), over either Raabe et al. or Hargarter et al. each in view of Gladen.

Appellants filed an Amendment and Response (dated November 19, 2001, a copy of which is enclosed as Appendix III) in which the specification was amended, claims 1-19, 32, and 33 were cancelled, claims 20-29 were amended, and claims 34-66 were added. The rejections of the pending Office Action were traversed, and reconsideration and withdrawal of the objections to the specification and rejections of the claims were requested.

A second nonfinal Office Action (a copy of which is enclosed as Appendix IV) was mailed from the USPTO on April 9, 2002, in which the Examiner maintained the objection to the specification; objected to claim 44 under 37 C.F.R. § 1.75(c). Further, claims 41-42, 45-56, and 62-63 were rejected under 35 U.S.C. § 112, first paragraph; claim 43 was rejected under 35 U.S.C. § 112, second paragraph; claims 20 and 22-23 were rejected under 35 U.S.C. § 103(a) over Gladen; and claims 57-61, 65-66, 21, 24-28 were rejected, and 20 and 22-23 were further rejected under 35 U.S.C. § 103(a) over Hargarter et al. in view of Gladen. The Examiner found claims 29-31, 34-40, and 64 to be allowable.

Appellants filed an Amendment and Response (dated July 9, 2002, a copy of which is enclosed as Appendix V) in which claims 43-44 were cancelled, and reconsideration and withdrawal of the objections and rejections were requested.

A final Office Action (a copy of which is enclosed as Appendix VI) was mailed from the USPTO on October 7, 2002, in which the objection to the specification was maintained, and the rejection of claims 41-42, 45-56, and 62-63 under 35 U.S.C. § 112, first paragraph, the rejection of claims 20 and 22-23 under 35 U.S.C. § 103(a) over Gladen, and the rejection of claims 57-61, 65-66, 21, and 24-28 over Hargarter et al. in view of Gladen were maintained. The allowability of claims 29-31, 34-40, and 64 was also maintained.

Appellants filed an Amendment and Response Under 37 C.F.R. § 1.116 (dated December 5, 2002, a copy of which is enclosed as Appendix VII) in which the specification was amended and reconsideration and withdrawal of the rejections was requested.

An Advisory Action dated December 17, 2002 (a copy of which is enclosed as Appendix VIII) issued from the USPTO in which the amendment to the specification was entered, and the rejections of record were maintained, indicating that claims 20-28, 41, 42, 45-63, 65, and 66 were rejected and claims 29-31, 34-40, and 64 were allowable.

Appellants filed a Second Amendment and Response Under 37 C.F.R. § 1.116 (dated February 6, 2003, a copy of which is enclosed as Appendix IX) in which claims 20-28, 41, 42, 45-56, and 62-66 were cancelled, claim 57 was amended, and claims 67-72 were added.

A second Advisory Action, dated February 28, 2003 (a copy of which is enclosed as Appendix X), issued from the USPTO in which the proposed amendments were not entered, the rejection of claims 20-28, 41, 42, 45-63, 65, and 66 was maintained, and the allowability of claims 29-31 and 34-40 was maintained, with claim 64 now being objected to.

Appellants filed a Third Amendment and Response Under 37 C.F.R. § 1.116 (dated March 6, 2003, a copy of which is enclosed as Appendix XI) in which claims 20-28, 41, 42, 45-56, and 62-66 were cancelled, and claim 57 was amended.

A nonfinal Office Action (a copy of which is enclosed as Appendix XII) was mailed from the USPTO on April 2, 2003, in which the finality of the previous Office Action was withdrawn, the amendment filed in the Third Amendment and Response Under 37 C.F.R. § 1.116 was entered, and the Examiner rejected claims 37 and 57 under 35 U.S.C. § 112, second

paragraph; claims 29-31, 34-37, 40, 57-59, and 61 under 35 U.S.C. § 102 (a/b/e) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over the prior art or Peacock et al. (U.S. Pat. No. 5,800,919); claims 37, 38, and 57-61 under 35 U.S.C. § 103(a) over the prior art or Peacock in view of Preisler (U.S. Pat. No. 3,861,988) and/or Coe (U.S. Pat. No. 754,403) and/or Sadtler (U.S. Pat. No. 1,672,093); claim 39 under 35 U.S.C. § 103(a) over the prior art or Peacock in view of Moore (U.S. Pat. No. 1,895,045) and/or Finke (U.S. Pat. No. 4,261,783); and claim 30 under 35 U.S.C. § 102(b) in view of Alfter et al. (U.S. Pat. No. 3,962,016), or Boyd et al. (U.S. Pat. No. 4,511,425), or Werstlein (U.S. Pat. No. 3,853,669).

Appellants filed an Amendment and Response (dated July 2, 2003, a copy of which is enclosed as Appendix XIII) in which claim 37 was cancelled and reconsideration and withdrawal of the rejections of the remaining pending claims were requested.

A final Office Action (a copy of which is enclosed as Appendix XIV) was mailed from the USPTO on September 23, 2003, in which claims 29-31, 34-36, 38-40, and 57-61 were rejected under 35 U.S.C. § 112, second paragraph, and the rejections of claims 29-31, 34-36, 40, 57-59, and 61 under 35 U.S.C. § 102(a/b/e), claims 38 and 57-61 under 35 U.S.C. § 103(a), claim 39 under 35 U.S.C. § 103(a), and claim 30 under 35 U.S.C. § 102(b) were maintained.

Appellants filed on January 23, 2004, a Notice of Appeal to the Board of Patent Appeals and Interferences from the decision dated September 23, 2003 (a copy of which is enclosed as Appendix XV).

All amendments, with the exception of the addition of new claims 67-72 which were presented in Appellants' Second Amendment and Response Under 37 C.F.R. § 1.116, dated February 6, 2003, have been entered.

V. SUMMARY OF THE INVENTION

Appellants' invention is directed to methods and kits for application of an adhesive coated film to a surface, in particular an irregular surface, with the objective of providing labor savings and improved quality over conventional techniques. The present invention provides, through specifically selecting a Heat Neutral Pressure Source including a composition with specified surface characteristics and thermal conductivity characteristics, the ability to, *inter alia*, apply thermoplastic films to surfaces, advantageously to irregular surfaces, wherein the film may be heated and applied to a surface while at a temperature higher than typical techniques known in the art, providing, *inter alia*, an improved adhesion. Further, the methods and kits of the present invention including a Heat Neutral Pressure Source do not require the heated film to cool to a point wherein a conventional tool, such as a rivet brush, can be used to apply the film without damaging it. Thus the present invention also can save time in the application of films by allowing the film to be adhered immediately upon heating to a temperature near its melting point and preferably not requiring the film to be re-heated in the event the film is allowed to cool too much under application techniques typical in the art. Additionally, the present invention may prevent damage to film in the instances wherein the conventional tool, such as a rivet brush, is applied to a film before it is sufficiently cooled.

VI. ISSUES PRESENTED FOR REVIEW

1. Whether claims 29-31, 34-36, 38-40, and 57-61 are indefinite under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter that Appellants regard as the invention.
2. Whether claims 29-31, 34-36, 40, 57-59, and 61 are anticipated under 35 U.S.C. § 102(a/b/e), or in the alternative, under 35 U.S.C. § 103(a) as obvious over the prior art

or U.S. Patent No. 5,800,919 (Peacock et al.).

3. Whether claims 38 and 57-61 are obvious under 35 U.S.C. § 103(a) over the prior art or U.S. Patent No. 5,800,919 (Peacock et al.) in view of U.S. Patent No. 3,861,988 (Preisler) and/or U.S. Patent No. 754,403 (Coe) and/or U.S. Patent No. 1,672,093 (Sadtler).

4. Whether claim 39 is obvious under 35 U.S.C. § 103(a) over the prior art or U.S. Patent No. 5,800,919 (Peacock et al.) in view of U.S. Patent No. 1,895,045 (Moore) and/or U.S. Patent No. 4,261,783 (Finke).

5. Whether claim 30 is anticipated under 35 U.S.C. § 102(b) over U.S. Patent No. 3,962,016 (Alfter et al.) or U.S. Patent No. 4,511,425 (Boyd et al.) or U.S. Patent No. 3,853,669 (Werstlein).

VII. GROUPING OF CLAIMS

For the purpose of this appeal, claims 29-31, 34-36, 38-40, and 57-61 stand or fall together.

VIII. ARGUMENT

A. Claims 29-31, 34-36, 38-40, and 57-61 are not indefinite under 35 U.S.C. § 112, second paragraph.

The primary purpose of the requirement under 35 U.S.C. § 112, second paragraph, that claims must particularly point out and distinctly claim the invention is to ensure that the scope of the claims is clear so that the public is informed of the boundaries of what constitutes infringement of the patent (M.P.E.P. § 2173). Furthermore, the requirement of clarity and precision is met where the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity, and wherein definiteness of the claim language is analyzed in light of

- (A) The content of the particular application disclosure;
- (B) The teachings of the prior art; and

(C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.
(M.P.E.P. § 2173.02).

While Appellants note that inconsistency of claim terms with the specification disclosure may make an otherwise definite claim take on an unreasonable degree of uncertainty (*see*, M.P.E.P. § 2173.03 and In re Cohn, 438 F.2d 989, 169 U.S.P.Q. 95 (CCPA 1971)), Appellants assert that not only is the definition of a Heat Neutral Pressure Source of the present invention presented in the specification at page 5, lines 17-21 and recited in claims 29-31, 34-36, 38-40, and 57-61 clear, deliberate and unambiguous, as admitted by the Examiner, but the specification presents no disclosure inconsistent with the description of the Heat Neutral Pressure Source disclosed at page 5, lines 17-21.

It is asserted that the specification can, and indeed should, provide guidance to one of ordinary skill in the art to understand the scope of the claimed invention. A decision on whether a claim is invalid under 35 U.S.C. § 112, “requires a determination of whether those skilled in the art would understand what is claimed when the claim is read in light of the specification.” Orthokinetics Inc., v. Safety Travel Chairs Inc., 1 U.S.P.Q.2d 1081, 1088 (CA FC 1986). Furthermore, “[I]f the claims, read in light of the specifications, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more.” Shatterproof Glass Corporation v. Libbey Owens Ford Company et al., 225 U.S.P.Q. 634, 641 (CA FC 1985), *quoting* Georgia-Pacific Corp. v. United States Plywood Corp., 258 F.2d 124, 136, 118 U.S.P.Q. 122, 132 (2d Cir.), *cert. denied*, 358 U.S. 884, 119 U.S.P.Q. 501 (1958). Thus, Appellants assert that the specification provides guidance to one of ordinary skill in the art to select materials which, in combination, provide suitable “surface characteristics” and “thermal conductivity characteristics” according to Appellants’ definition of “Heat Neutral Pressure Source” set forth clearly in the specification at page 5, lines 17-21. Further, the Examiner has failed to show how any ambiguity as to the scope of the claims would be imparted to one of ordinary skill in the art

by providing further description of what is considered suitable “surface characteristics” and “thermal conductivity characteristics” which, together, provide a Heat Neutral Pressure Source of the present invention.

As disclosed in the specification at page 5, lines 17-21 (as amended in the Amendment and Response filed by Appellants on November 19, 2001) “[f]or purposes of this invention, a ‘Heat Neutral Pressure Source’ is a pressure source that has thermal conductivity characteristics and surface characteristics at the point of contact with the film such that the film, when nearly melted, will not adhere to the Heat Neutral Pressure Source during application in accordance with the method of the present invention to a surface.” Furthermore, it is pointed out that the Examiner indicated, at page 2, paragraph 3 of the final Office Action issued September 23, 2003, that the disclosure provides “a clear, deliberate and unambiguous special definition for ‘Heat Neutral Pressure Source’ – namely the paragraph at page 5, lines 17-21”. According to the specification at page 5, lines 17-21, the Heat Neutral Pressure Source of the present invention includes two aspects: surface characteristics and thermal conductivity characteristics that together provide a pressure source that, at the point of contact with a film heated to nearly melting, does not adhere to film. Suitable thermal conductivity characteristics and surface characteristics of the Heat Neutral Pressure Source are disclosed in the specification at page 5, lines 22-28 and page 5, line 29 to page 6, line 7.

“[T]hermal conductivity characteristics” of the composition of a Heat Neutral Pressure Source of the present invention disclosed at page 5, lines 22-26, include a composition wherein the film-contacting portion of the Heat Neutral Pressure Source “does not appreciably conduct heat either to or from the surface of the film as the film is applied under pressure to a surface on a substrate. In other words, the composition has low thermal conductivity but can withstand high temperatures.” One measurement of suitable thermal conductivity characteristics of a Heat Neutral Pressure Source of the present invention is disclosed in an embodiment wherein “[p]referably, the pressure source has a Thermal Conductivity as measured by ASTM

C-518 of less than 1.8 BTU/hr-in-ft²-°F” (specification, page 5, lines 26-28), which limitation is recited in pending claim 57. Thus, this measurement describes a possible characteristic of one embodiment of a Heat Neutral Pressure Source of the present invention. By way of the above description and exemplified embodiment, it is submitted that one of ordinary skill in the art would be able to distinguish a composition with suitable thermal conductivity characteristics from a composition which does not have suitable thermal conductivity characteristics.

Suitable surface characteristics of the Heat Neutral Pressure Source of the present invention are disclosed at page 5, line 29 to page 6, line 7. Further, the specification points out at page 5, line 32 to page 6 line 5 that while a composition, such as cotton, may have a low thermal conductivity which may be suitable for use in the composition of a Heat Neutral Pressure Source, such material ultimately may be unsuitable for a Heat Neutral Pressure Source of the present invention as it may not possess suitable surface characteristics. Also, the specification, at page 6, lines 8-16, provides a method for one skilled in the art to determine if a selected material includes a composition having suitable surface characteristics and thermal characteristics to provide a Heat Neutral Pressure Source. A film is heated to nearly its melting point and immediately pressed to a substrate in an essentially perpendicular manner. If the film sticks to the material or is otherwise damaged by the material, the material is not suitable for use as a Heat Neutral Pressure Source, i.e., it does not include suitable surface characteristics and/or thermal conductivity characteristics to provide a Heat Neutral Pressure Source, as disclosed in the specification at page 5, lines 17-21.

Thus, the disclosure makes clear to one skilled in the art that the attributes of suitable surface characteristics and suitable thermal conductivity characteristics are both present in the Heat Neutral Pressure Source of the present invention, as disclosed at page 5, lines 17-21, with certain potentially suitable surface characteristics and thermal conductivity characteristics exemplified at page 5, line 22 to page 6, line 7 of the specification. Additionally, the specification offers further examples of materials that could provide the attributes of a Heat Neutral Pressure Source, such as an open cell foam material (specification, page 6, lines 28-29) or an open cell foamed silicone material (specification, page 7, lines 11-12), but in no instance whatsoever is there an inconsistency between exemplified material for a Heat Neutral Pressure Source together with the description of the Heat Neutral Pressure Source in the specification, and the Heat Neutral Pressure Source as recited in Appellants' claims.

Appellants submit, therefore, that for at least the above reasons, claims 29-31, 34-36, 38-40, and 57-61, reciting a Heat Neutral Pressure Source, are not indefinite under 35 U.S.C. §112, second paragraph. Review and reversal by the Board of the rejection of claims 29-31, 34-36, 38-40, and 57-61 is respectfully requested.

B. Claims 29-31, 34-36, 40, 57-59, and 61 are not anticipated under 35 U.S.C. § 102(a/b/e) or, in the alternative, under 35 U.S.C. § 103(a) as obvious over the prior art or Peacock et al.

Anticipation under 35 U.S.C. § 102

The standard for anticipation is one of strict identity. "It is axiomatic that for prior art to anticipate under § 102 it has to meet every element of the claimed invention"

Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986), cert. denied, 480 U.S. 947 (1987). Further, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226,

1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989); M.P.E.P. § 2131.

"In determining that quantum of prior art disclosure which is necessary to declare an applicant's invention 'not novel' or 'anticipated' within section 102, the stated test is whether a reference contains an 'enabling disclosure'" In re Hoeksema, 399 F.2d 269, 158 U.S.P.Q. 596, 600 (CCPA 1968). "A reference contains an 'enabling disclosure' if the public was in possession of the claimed invention before the date of invention." M.P.E.P. § 2121.01.

1. Neither Peacock et al. nor the prior art discloses every element of the claimed invention.

Each of Appellants' independent claims subject to this rejection recites a Heat Neutral Pressure Source, wherein the Heat Neutral Pressure Source is defined in the specification, for example at page 5, lines 17-21. In contrast, the action of heating the film, followed by pressing the film to the surface with a rivet brush, disclosed in Peacock et al. (col. 10, lines 42-49), fails to teach the Heat Neutral Pressure Source of the present invention. Furthermore, there is no teaching in Peacock et al. that the rivet brush does not stick to or damage the heated film when pressing the film to a substrate after heating. It is asserted that the Examiner has not shown, either in Peacock et al. or in the prior art, where the Heat Neutral Pressure Source of the present invention is taught.

2. Neither Peacock et al. nor the prior art contain an enabling disclosure.

Peacock et al. teach acrylate copolymer pressure sensitive adhesives incorporating plasticizer for improved low temperature adhesives for graphic marking films (Peacock et al., abstract). The action of heating and pressing a film with a rivet brush is used in connection with the test procedures of the adhesive system taught. In the description of the test procedures, strips of film are applied to a test panel including a rivet head, the film around the rivet head is heated

to soften the film without melting it, and the film is brushed around the rivet head with a rivet brush (Peacock et al., col. 10, lines 42-45).

As stated above, neither Peacock et al. nor the prior art disclose a Heat Neutral Pressure Source of the present invention. Furthermore, neither Peacock et al. nor the prior art teach either how one of skill in the art would select material having suitable surface characteristics and thermal conductivity characteristics to provide a Heat Neutral Pressure Source, or recognize the advantages provided by Appellants' Heat Neutral Pressure Source. Peacock et al. and the prior art are enabling only for conventional tools, such as a rivet brush for example, known in the art for application of thermoplastic films to surfaces. There is no enabling disclosure in either Peacock et al. or the prior art of how or why one of skill in the art would provide a Heat Neutral Pressure Source of the present invention.

Furthermore, there is no motivation identified, either in Peacock et al. or in the art generally, to provide a Heat Neutral Pressure Source of the present invention. There is no indication in Peacock et al. whatsoever that the problem of potential damage to films associated with heating such films and applying the heated films to surfaces using conventional tools such as brushes or squeegees is recognized, much less that the problem is solved. Furthermore, the Examiner has failed to show where in the art generally that the problem is recognized and solved.

Appellants, however, recognized that adhering adhesive films to irregular surfaces by heating and pressing with tools known in the art, such as rivet brushes and squeegees, may result in either damage of the film, if the film is too hot upon application, or lifting of the film, resulting in unsatisfactory adherence, if the film is allowed to cool too much prior to application. Not only have Appellants recognized the problem, they have also solved the problem by selecting a pressure source having thermal conductivity characteristics and surface characteristics at the point of contact with the film to provide a Heat Neutral Pressure Source, wherein the film, when nearly melted, will not adhere to the Heat Neutral Pressure Source during application.

Obviousness under 35 U.S.C. § 103

"When applying 35 U.S.C. § 103, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and
- (D) Reasonable expectation of success is the standard with which obviousness is determined." M.P.E.P. § 2141 (citations omitted).

3. Neither Peacock et al. nor the prior art teach or suggest the claimed invention.

As indicated above, neither Peacock et al. nor the prior art teach Appellants' Heat Neutral Pressure Source. Furthermore, in view of the above comments, there is also no teaching or suggestion to modify either Peacock et al. or the prior art to provide a Heat Neutral Pressure Source of the present invention.

4. It is impermissible to use hindsight as an obviousness test.

Appellants respectfully submit that the use of either Peacock et al. or the state of the prior art in an obviousness rejection can only occur by the impermissible use of hindsight reasoning. In order to establish a *prima facie* case of obviousness, the references must teach or suggest all the claim limitations. Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 231 U.S.P.Q. 81 at 93 ("Focusing on the obviousness of substitutions and differences instead of on the invention as a whole, . . . was a legally improper way to simplify the difficult determination of obviousness."). One cannot "simply [to] engage in a hindsight reconstruction of the claimed invention, using the Applicant's structure as a template and selecting elements from references to fill the gaps." In re Gorman, 933 F.2d 982, 18 U.S.P.Q.2d 1885, 1888 (Fed. Cir. 1991). Further, both the suggestion for combining the teachings of the prior art to make the

invention and the reasonable likelihood of its success must be founded in the prior art and not in the teachings of Appellants' disclosure. In re Dow Chem., 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988). Here, the cited art neither suggests the combination of its teachings nor suggests the reasonable likelihood that such a combination would result in the present invention.

Appellants respectfully submit that the teachings of either Peacock et al. or the prior art are woefully inadequate to teach or suggest a Heat Neutral Pressure Source of the present invention. There is no indication in either Peacock et al. or the prior art of a Heat Neutral Pressure Source of the present invention having surface characteristics and thermal conductivity characteristics such that it does not stick to or damage film when the film is heated to nearly its melting point and immediately pressed to a surface using the Heat Neutral Pressure Source. It is therefore submitted that impermissible hindsight was used to sift through either Peacock et al. or the prior art in order to reconstruct the claimed invention using Appellants' specification as a template for selecting a particular teaching.

Furthermore, there is simply no teaching, suggestion, or incentive in either Peacock et al. or the prior art to provide a motivation to modify its teachings to provide Appellants' Heat Neutral Pressure Source, specifically in view of the fact that there is no indication in Peacock et al. that a rivet brush, used solely in the testing procedures for the claimed pressure sensitive adhesive, is inadequate for its intended purpose and in view of the fact that the Examiner has failed to show in the prior art any motivation whatsoever to provide a Heat Neutral Pressure Source of the present invention in place of a conventional tool for application of thermoplastic film.

Neither Peacock et al. nor the asserted prior art teach or suggest the problem encountered when heating to nearly its melting point and then pressing the heated films to irregular substrates. Nor do Peacock et al. or the asserted prior art teach or suggest a solution to the problem. Further, the Examiner has failed to indicate where in the art this problem and/or

solution are found. Appellants respectfully submit, for at least these reasons, that the present claims are both novel and inventive in view of either Peacock et al. or the state of the prior art. Review and reversal of the rejection of claims 29-31, 34-36, 40, 57-59, and 61 by the Board are, therefore, respectfully requested.

C. Claims 38 and 57-61 are not obvious under 35 U.S.C. § 103(a) over the prior art or Peacock et al. in view of Preisler and/or Coe and/or Sadtler.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation in the references themselves or the knowledge generally available to one skilled in the art to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Further, the references must teach or suggest all the claim limitations (M.P.E.P §2143). Additionally, the references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention (M.P.E.P. § 2141).

1. Neither Peacock et al. nor the prior art, in combination with either Preisler and/or Coe and/or Sadtler teach or suggest the claimed invention,

As indicated above, Appellants assert that neither the prior art nor Peacock et al. teach Appellants claims including a Heat Neutral Pressure Source. Furthermore, neither Preisler, Coe, nor Sadtler provide that which is missing from either Peacock et al. or the prior art, which includes heating a film and pressing the film against a substrate with a Heat Neutral Pressure Source of the present invention.

Preisler teaches a pressure sensitive rolled sheeting applicator and dispenser for applying pressure sensitive sheet material such as paper, plastic, and metal foil that automatically removes the back cover strip and smooths down pressure sensitive adhesive sheeting on a flat surface, and in such a way that paper will adhere to small wall depressions (Preisler, col. 1, lines 4-44). There is no teaching or suggestion that heat is applied to the pressure sensitive sheet

material and there is no teaching or suggestion of a Heat Neutral Pressure Source. Therefore, Preisler fails to add that which is missing from either Peacock et al. or the prior art.

Coe teaches a Guilder's tool whereby metallic leaf is deposited on uneven surfaces by means of a sponge-rubber pressure pad (Coe, lines 8-25). Coe fails to teach or suggest a film as recited in the claims of the present invention, fails to teach or suggest the application of heat prior to depositing the leaf on a surface, and fails to teach or suggest a Heat Neutral Pressure Source of the present invention. Appellants therefore assert that, as in Preisler, Coe fails to provide that which is missing from both Peacock et al. and the prior art.

Sadtler teaches a method by which a surface is decorated using very thin bond paper or onion skin paper having applied thereto the decoration (Sadtler, page 2, lines 38-45). The paper is wetted by applying wet paste or fluid glue between the paper and the surface to which it is to be adhered and pressing the paper with a pad so as to force the paper into continuous contact with the surface to be decorated (Sadtler, page 2, line 62 to page 3, line 45). Because Sadtler also fails to teach or suggest the application of heat to a film or the Heat Neutral Pressure Source of the present invention, Sadtler, like Preisler and Coe, fails to supply that which is missing from either Peacock et al. or the prior art.

2. No motivation is provided to combine either Peacock et al. or the prior art with either Preisler and/or Coe and/or Sadtler, nor is there any suggestion that such combination would provide a reasonable expectation of success.

Since neither Preisler, Coe, nor Sadtler either teach or suggest the application of heat prior to application of the film, metallic leaf, or paper, respectively, to surfaces, Appellants assert that no legally sufficient motivation to combine the teachings of Preisler with Peacock et al. or the prior art generally wherein the film is heated to soften the film (Peacock et al., column 10, lines 43-44). Nor is there any suggestion that such combination would provide a reasonable expectation of success.

The Examiner asserted in the final Office Action mailed September 23, 2003 (at the paragraph bridging pages 9 and 10), that taking the secondary references as a whole, it is known to use a flexible sponge or foam pressing element to adapt film to a surface, regardless of the preliminary processing (e.g., heat), asserting that "[t]here is no fundamental incompatibility between pressing an unheated film and a heated one ... while sticking might be a concern, such is considered to be entirely expected and it is not beyond the skill level of the artisan to assure that materials are used that are low adhesion ..." Appellants disagree and point out that it is precisely the problem of sticking, considered by the Examiner to be "entirely expected" (final Office Action, mailed September 23, 2003, page 10, line 3), to which Appellants' invention is directed. Furthermore, the use of Appellants' Heat Neutral Pressure Source avoids the necessity of selecting a low adhesion material, as suggested by the Examiner (final Office Action, page 10, lines 3-5). In the absence of some documentary evidence supporting the Examiner's assertions, they cannot rise above the level of unsupported speculation. And unsupported speculation cannot support a *prima facie* case of obviousness.

3. When considered as a whole, a combination of Peacock et al. or the prior art with Coe teaches away from the claimed invention.

"It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art." In re Wesslau, 353 F.2d 238, 147 U.S.P.Q. 391, 393 (CCPA 1965). A single statement in the prior art reference should not be taken out of context and relied upon with the benefit of hindsight to show obviousness; rather, a reference should be considered as a whole. Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 230 U.S.P.Q. 416, 419-420 (Fed. Cir. 1986), cert. denied, 484 U.S. 823 (1987), on remand, 10 U.S.P.Q. 2d 1929 (N.D. Calif. 1989).

As indicated above, there is no teaching or suggestion in the Guilder's tool of Coe, whereby metallic leaf is deposited on uneven surfaces by means of a sponge-rubber pressure pad, of applying heat to the metallic leaf prior to deposition on a surface. In fact, as applying heat would likely be detrimental to fragile decorative metallic leaf, Appellants respectfully submit that one of skill in the art would not be motivated to apply heat to metallic leaf prior to application to a surface. In effect, Coe, in combination with either Peacock et al. or the prior art teach away from Appellants' Heat Neutral Pressure Source wherein a film is heated to nearly melting prior to application. Thus, Appellants submit that the asserted combination is improper and cannot form the basis for a *prima facie* case of obviousness with respect to these rejected claims.

4. It is impermissible to use hindsight as an obviousness test.

Appellants respectfully submit that the combination of Peacock et al. or the prior art with Preisler and/or Coe and/or Sadtler in an obviousness rejection can only occur by the impermissible use of hindsight reasoning.

As indicated above, one cannot "simply [to] engage in a hindsight reconstruction of the claimed invention, using the Applicant's structure as a template and selecting elements from references to fill the gaps." In re Gorman, 933 F.2d 982, 18 U.S.P.Q.2d 1885, 1888 (Fed. Cir. 1991). Further, both the suggestion for combining the teachings of the prior art to make the invention and the reasonable likelihood of its success must be founded in the prior art and not in the teachings of Appellants' disclosure. In re Dow Chem., 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988). Here, the cited art neither suggests the combination of its teachings nor suggests the reasonable likelihood that such a combination would result in the present invention.

Appellants submit that, in view of the above comments, there is simply no teaching, suggestion, or motivation in the art or in the references themselves to combine Peacock

et al. or the prior art with either Preisler and/or Coe and/or Sadtler to combine their teachings to provide a Heat Neutral Pressure Source, for at least the reason that neither Preisler, Coe, nor Sadtler teach or suggest the application of heat and, in fact, it is asserted that Coe teaches away from the application of heat.

In consideration of the above comments, it is asserted that claims 38 and 57-61 are not obvious over either Peacock et al. or the prior art in view of Preisler and/or Coe and/or Sadtler. Therefore, for at least the above reasons, review and reversal of the rejection by the Board of claims 38 and 57-61 is respectfully requested.

D. Claim 39 is not obvious under 35 U.S.C. § 103(a) over the prior art or Peacock et al. in view of Moore and/or Finke.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation in the references themselves or the knowledge generally available to one skilled in the art to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Further, the references must teach or suggest all the claim limitations (M.P.E.P §2143).

1. Neither Peacock et al. nor the prior art, in combination with either Moore and/or Finke teach or suggest the claimed invention.

Moore is directed to the application of paint or other marking compound on floors, streets, and highways wherein the painted surface is covered with paper to protect the wet paint from damage until it is dried (Moore, page 1, lines 29-40; page 2, lines 18-19; and page 3, lines 63-70).

Finke teaches a label printing and applying apparatus including means for printing successive pressure sensitive, relatively stiff adhesive labels, delaminating the labels from a

supporting web, and applying the printed delaminated labels to merchandise (Finke, Abstract and column 3, line 13).

At the outset, it should be noted that neither Moore nor Finke disclose or suggest the use of a "Heat Neutral Pressure Source" to apply films after heating. In other words, neither of the secondary references addresses the basic deficiency of the primary references. For that reason alone, this rejection fails to meet the requirements of *prima facie* obviousness. Appellants have, however, developed the following arguments as well.

2. No motivation is provided to combine either Peacock et al. or the prior art with either Moore and/or Finke, and there is no suggestion that such combination would provide a reasonable expectation of success.

Moore teaches a method for applying painted markings to surfaces to provide directional data on the pavement of streets and highways (Moore, page 1, lines 1-6). There is no teaching or suggestion whatsoever of the application of heat to a thermoplastic film, and that there is also no teaching or suggestion whatsoever of applying a thermoplastic, or any other type of film, to a substrate. Therefore, Appellants submit that not only is there no motivation to combine Peacock et al. or the prior art with Moore to provide the present invention, there is also no reasonable expectation of success upon any such combination.

Finke also fails to teach or suggest a method of applying an adhesive-coated film wherein the film is heated. Thus, Appellants submit that there is no motivation to combine Peacock et al. or the prior art with Finke to provide the present invention including Appellants' Heat Neutral Pressure Source. Furthermore, the label printing and applying apparatus provides a means for delaminating a label from a web, wherein the label is relatively stiff and does not follow the supporting material from which it has been delaminated, thus providing a leading edge for applying the label to a substrate (Finke, col. 3, lines 8-16). Appellants submit that were the labels of Finke heated as recited in connection with claim 39, it is unlikely that they would retain

the necessary stiffness to delaminate from the web, providing a leading edge for adhering to a substrate. Thus a combination of Peacock et al. or the prior art, including the application of heat, with Finke provides no reasonable expectation of success.

3. Moore is drawn to nonanalogous art

Appellants submit that, in addition to the above comments, Moore may not be considered as prior art against the present invention as it is drawn to nonanalogous art. That is, the art of Moore is too remote from that of the present invention to be treated as prior art. In re Clay, 23 U.S.P.Q.2d 1058, 1060 (CAFC 1992). Two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference is still reasonably pertinent to the particular problem with which the inventor is involved. Id.

Appellants respectfully submit that Moore teaches a method for applying painted markings to surfaces to provide directional data on the pavement of streets and highways (Moore, page 1, lines 1-6), which is not the field of endeavor of the present invention, that being the application of thermoplastic films to surfaces, particularly to irregular surfaces. Furthermore, the application of paint on pavement is not reasonably pertinent to the problem of heating and applying the thermoplastic film in a manner that provides good quality adhesion while reducing the risk of damage to the film if applied while it is too hot. Therefore, as neither criteria for analogous art is met by the disclosure of Moore, Appellants submit that Moore is drawn to nonanalogous art, thus is not prior art against the present invention.

In view of the above comments, it is submitted that claim 39 is not obvious under 35 U.S.C. § 103(a) over the prior art or Peacock et al. in view of Moore and/or Finke. For at least the above reasons, review and reversal by the Board of the rejection of claim 39 are, therefore, respectfully requested.

E. Claim 30 is not anticipated under 35 U.S.C. § 102(b) over Alfter et al. or Boyd et al. or Werstlein.

For a claim to be anticipated under 35 U.S.C. § 102(b), each and every element of the claim must be found in a single prior art reference (M.P.E.P. §2131).

1. Neither Alfter et al., Boyd et al., nor Werstlein disclose every element of the claimed invention.

Claim 30 recites, *inter alia*, a kit for application of films to a substrate including a Heat Neutral Pressure Source. Such Heat Neutral Pressure Source, as disclosed in the specification at, for example, page 5, lines 17-21, is a pressure source that includes surface characteristics and thermal conductivity characteristics such that the Heat Neutral Pressure Source when pressed against a heated film onto a substrate does not adhere to film when the film is heated to nearly melted. Potentially suitable thermal conductivity characteristics include the characteristic that the composition of the Heat Neutral Pressure Source is such that it does not appreciably conduct heat to or from the surface of the film (specification, page 5, lines 22-24).

Alfter et al. provide a method for joining abutting thermoplastic synthetic resin foam sheets by heating a metal foil strip and pressing the strip, using a pressure roll, along the junction zone of the foam sheets (Alfter et al., col. 1, lines 30-35 and col. 2, line 2). This effects a heat transfer to the foam through the metal strip which causes the metal strip to be firmly attached in the junction zone of the foam sheets (Alfter et al., col. 1, lines 36-42). Thus, Alfter et al. require heat transfer by the pressure source which is in direct contrast to the recited Heat Neutral Pressure Source of claim 30.

Boyd et al. teach a pad used to press a heated label against a substrate. The teachings of Boyd et al. provide an apparatus for heat transfer labeling of articles wherein decorative laminate labels are carried on a carrier web to a heated platen, and a pad is pressed

against the platen to remove the label from the web. The label is then transferred by the pad to the article to be labeled (Boyd et al., col. 2, line 66 to col. 3, line 20). The pad is continually heated by indirect contact with the heated platen during label pick-up, and may also include an embedded heating element that heats the pad's surface by conduction (Boyd et al., col. 3, lines 45-53). Since the pad is heated, Appellants submit that the pad of Boyd et al. does conduct heat, thus cannot include material that does not appreciably conduct heat, contrary to a thermal conductivity characteristics of the recited Heat Neutral Pressure Source.

Finally, Werstlein teaches a welding tip for a plastic welding gun wherein the tool "is made entirely from heat absorbing material" (Werstlein, col. 2, lines 55-56) thus, Appellants submit, also cannot include material that does not appreciably conduct heat.

Thus, Appellants assert that neither Alfter et al., Boyd et al., nor Werstlein teach the Heat Neutral Pressure source of the present invention.

For at least the above reasons, Appellants assert that claim 30 is not anticipated by either Alfter et al., Boyd et al., or Werstlein. Review and reversal by the Board of the rejection of claim 30 is respectfully requested.

Appellants' Brief on Appeal

Serial No.: 09/479,648

Confirmation No.: 3344

Filed: 7 January 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

Page 25 of 25

F. Summary

For the many foregoing reasons, it is respectfully submitted that *prima facie* cases of anticipation and obviousness have not been established. It is earnestly requested that the Board reverse the Examiner's rejections, and that all of the claims be allowed.

Respectfully submitted for

Ronald S. STEELMAN et al.,

By

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23 APRIL 2004
Date

By:



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APPENDIX I.

Serial No.: 09/479,648

Docket No.: 54655US009

Claims 29-31, 34-40, and 57-61 are provided below.

29. (Previously presented) A method of saving labor of adhering an adhesive-coated film to a substrate having a surface, comprising:

- (a) distributing a film to a party that has been taught to use the method of Claim 34;
- (b) optionally permitting such party to print an image on the film; and
- (c) permitting such party to use the method to adhere the film to a surface of the substrate.

30. (Original) A kit for application of films to a substrate, comprising:

- a) a Heat Neutral Pressure Source, and
- b) a heat source adapted for applying heat to an adhesive coated film during application to a substrate.

31. (Original) The kit of claim 30, further comprising a film having removable adhesive coated thereon.

34. (Previously presented) A method of applying an adhesive-coated film to a substrate, the method comprising:

providing a film comprising pressure sensitive adhesive coated on a major surface of the film;

heating the film to the softening point of the film; and

pressing the film against a substrate with a Heat Neutral Pressure Source after heating the film, wherein the pressure sensitive adhesive on the major surface of the film adheres to the substrate.

35. (Previously presented) A method according to claim 34, wherein the heating comprises heating the film using hot air.

36. (Previously presented) A method according to claim 34, wherein the heating comprises heating the film using infrared radiation.

38. (Previously presented) A method according to claim 34, wherein the Heat Neutral Pressure Source comprises open cell foam material.

39. (Previously presented) A method according to claim 34, wherein the Heat Neutral Pressure Source comprises a roller.

40. (Previously presented) A method according to claim 34, wherein the substrate comprises a highly textured surface.

57. (Previously presented) A method of applying an adhesive-coated film to a substrate, the method comprising:

providing a film comprising pressure-sensitive adhesive coated on a major surface of the film;

heating the film to the softening point of the film using a heat source; and

pressing the film against a substrate with a Heat Neutral Pressure Source, the Heat Neutral Pressure Source comprising a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F, wherein the adhesive on the major surface of the film adheres to the substrate.

Appellants' Brief on Appeal

Serial No.: 09/479,648

Confirmation No.: 3344

Filed: 7 January 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

Appendix I.

58. (Previously presented) A method according to claim 57, wherein the heating comprises heating the film using hot air.

59. (Previously presented) A method according to claim 57, wherein the heating comprises heating the film using infrared radiation.

60. (Previously presented) A method according to claim 57, wherein the Heat Neutral Pressure Source comprises open cell foam material.

61. (Previously presented) A method according to claim 57, wherein the substrate comprises a highly textured surface.

APPENDIX II.

Serial No.: 09/479,648

Docket No.: 54655US009

Nonfinal Office Action mailed from the U.S. Patent and Trademark Office on July 17,
2001.

R66 DV



UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SN

APPLICATION NO.	FILING DATE	OFFICE OF INTELLECTUAL PROPERTY COUNSEL	ATTORNEY DOCKET NO.
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09/179-848

01/07/00

STEELMAN

3M INNOVATIVE PROPERTIES COMPANY

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JUL 20 2001

EXAMINER

(082/0717

OFFICE OF INTELLECTUAL PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY
P.O. BOX 33427
ST. PAUL, MN 55130-3427

REFERRED TO

GALLAGHER, J.

ART UNIT

PAPER NUMBER

1733

DATE MAILED:

07/17/01

SN

7-30-01

Resp 4 11/17/01

Resp 6 11/17/02

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

APPENDIX 2

Office Action Summary

Application No.

09/40796-8

Applicant(s)

Examiner

Group Art Unit

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☐ Responsive to communication(s) filed on _____.
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-33 is/are pending in the application.
Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-33 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 4-6
- ☒ Notice of Reference(s) Cited, PTO-892
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

Art Unit 1733

1. The disclosure is objected to because of the following informalities: (a) Page 5 line 19 and page 6 line 18 - change "to" before "the" to "with"; and (b) page 6 line 18 - delete the term "to be adhered to" as being unnecessary and/or redundant.

Appropriate correction is required.

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: There is no apparent support for the limitations of claim 31 in its entirety, the closest such disclosure apparently being found at page 8 lines 28-31 of the specification.

3. Claims 1-33 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Specifically (a) if the term "heat neutral pressure source" is not a generally recognized term of art, then it is felt that it should be replaced by one that is; and (b) applicants' apparent intent is that claims 20-28 define an apparatus (i.e. equipment) and NOT an "article" as now presented, such that these claims should be so amended along this line.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit 1733

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

5. Claims 20-28 are further rejected under 35

U.S.C. 102(b) as anticipated by or, in the alternative, under 35

U.S.C. 103(a) as obvious over Gladen.

Gladen discloses a bonding apparatus composed of a heat source and a removable, non-stick pressure pad (in the form of a TEFLON cloth) which is interposed between a press/pressure applying surface and a press charge. (Figure, Abstract, column 1 lines 21-23 and 42-67, column 2 lines 1-16).

6. Claims 1-19, 29 and 32-33 are further rejected under 35

U.S.C. 102(b) as anticipated by or, in the alternative, under 35

U.S.C. 103(a) as obvious over either Raabe et al. or Hargarter et al.

Raabe et al. (Figure, Abstract, column 1 lines 5-28 and 44-66, column 2 lines 47-68, column 3 lines 1-10 and 35-60; column 4 lines 3-10 and 27-55 and N.B. lines 33-39, Examples 4-5) and Hargarter et al. (Abstract, column 10 lines 5-7, column 6

Art Unit 1733

lines 32-65 and N.B. lines 55-65, column 11 lines 44-63, column 12 lines 24-28) both disclose that it is known to adhere a multilayer, adhesive coated plastic film to a substrate via a process wherein the film is first heated to or above its softening point and then contacted with and pressed onto a substrate utilizing a roller pressure application means (which last foregoing is held/seen to be consistent/in agreement with applicants' specification at page 7 lines 4-5).

7. Claims 30-31 are further rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ullmann et al.

Ullmann et al. disclose that it is known to assemble a heat source (consistent/in agreement with applicants' specification at page 8 lines 4-6) and accessories for use therewith in a case i.e. in kit form. (Column 1 lines 6-14).

With each of the foregoing art rejections of paragraphs 5-7, any differences which might possibly exist between the envisioned, claimed inventions and the teachings of these respective references are held/seen NOT to constitute patentable differences.

9. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth

Art Unit 1733

in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-19, 29 and 32-33 are still further rejected under 35 U.S.C. § 103(a) as being unpatentable over either Raabe et al. or Hargarter et al. each in view of Gladen (all of record above). It would have been obvious to one of ordinary skill in this art to employ the pressure pad of Gladen for its documented beneficial function in/in conjunction with the process of either of the primary references, wherever deemed desirable and/or necessary; mere utilization of a known (and again, beneficial) element involved.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. J. Gallagher whose telephone number is (703) 308-1971. The examiner can normally be reached on M-F from approximately 8:30 A.M. to 5 P.M. The examiner can also be reached on alternate N/A.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball, can be reached on (703) 308-2058. The fax phone number for this Group is (703) 305-3599.

Serial No. 09/479,648

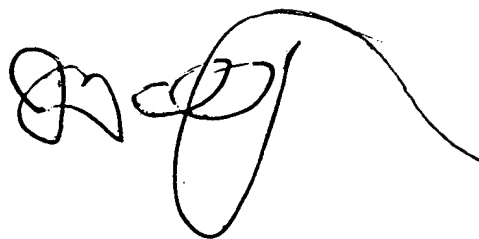
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Art Unit 1733

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661/0662.

JJ6
JJGallagher:cdc

July 5, 2001



JOHN J. GALLAGHER
PRIMARY EXAMINER
ART UNIT 131 / 733

APPENDIX III.

Serial No.: 09/479,648

Docket No.: 54655US009

Amendment and Response filed November 19, 2001.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Steelman et al.	)	Group Art Unit:	1733
)		
Serial No.:	09/479,648	)	Examiner:	J.J. Gallagher
)		
Filed:	January 7, 2000)		
For:	METHOD OF APPLYING ADHESIVE COATED FILM			

AMENDMENT AND RESPONSE

Assistant Commissioner for Patents
Washington D.C. 20231

Dear Sir:

In response to the Office Action dated July 17, 2001, please amend the above-identified application as follows:

In the Specification

Please amend the paragraph beginning on page 5, line 17, with the following rewritten paragraph. Per 37 C.F.R. §1.121, this paragraph is also shown in Appendix A with notations to indicate the changes made.

-- For purposes of this invention, a "Heat Neutral Pressure Source" is a pressure source that has thermal conductivity characteristics and surface characteristics at the point of contact with the film such that the film, when nearly melted, will not adhere to the Heat Neutral Pressure Source during application in accordance with the method of the present invention to a surface. --

AMENDMENT AND RESPONSE

Page 2 of 13

Steelman et al.

Serial No.: 09/479,648

Filed: January 7, 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

Please amend the paragraph beginning on page 5, line 29, with the following rewritten paragraph. Per 37 C.F.R. §1.121, this paragraph is also shown in Appendix A with notations to indicate the changes made.

-- With respect to the surface characteristics of the Heat Neutral Pressure Source, the film-contacting portion of the device has a geometry such that a soft or melted film does not distort or adhere to the device in a manner that would result in tearing or other such damage to the film. Thus, for example, while cotton is a material that is low in thermal conductivity, a cotton glove may be unsuitable for use as a Heat Neutral Pressure Source for certain film materials because its surface presents fibers and other such irregularities that provide interstices for flow of a highly softened or melted film therein and furthermore adheres to many highly soften films. The surface characteristics of a cotton glove, therefore, leads to disruption of the appearance of the film in an attempt to carry out the process of this invention. --

Please amend the paragraph beginning on page 6, line 17, with the following rewritten paragraph. Per 37 C.F.R. §1.121, this paragraph is also shown in Appendix A with notations to indicate the changes made.

-- Preferably, the pressure source is compressive to allow full contact of the film to be adhered with the substrate. Thus, if an intended substrate contains a rivet that stands out from the plane of the substrate, a pressure source that is not compressive will not conform around the protruding rivet, and thus will allow non-contact or "tenting" of the film to occur at the base of the rivet. A preferred pressure source will allow full conformation or compliance of the pressure source around any surface irregularity to be encountered in the intended application. --

Steelman et al.

Serial No.: 09/479,648

Filed: January 7, 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

In the Claims

Please cancel claims 1-19, 32, and 33. Please amend claims 20-29 as indicated below. Please enter and consider new claims 34-66 as indicated below. The new and amended claims are provided below in clean form. Per 37 C.F.R. § 1.121, amended claims are also shown in Appendix A with notations to indicate changes made (for convenience, all pending claims, including those added hereby, are provided in Appendix A).

20. (AMENDED) An apparatus for softening a film and adhering the film to a surface of a substrate, the apparatus comprising:

- a) a heat source; and
- b) a pressure source;

wherein the pressure source comprises a Heat Neutral Pressure Source and wherein the heat source and the pressure source direct heat and pressure on the film, and further wherein the heat source and the pressure source do not simultaneously apply heat and pressure to the same location on the film.

21. (AMENDED) The apparatus of Claim 20, wherein the heat source comprises at least one nozzle for directing heat toward the film.

22. (AMENDED) The apparatus of Claim 20, wherein the heat source operates at a temperature of greater than about 150°C.

23. (AMENDED) The apparatus of Claim 20, wherein the heat source generates radiant energy.

24. (AMENDED) The apparatus of Claim 20, wherein the heat source generates hot air.

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25. (AMENDED) The apparatus of Claim 20, wherein the pressure source comprises a roller.

26. (AMENDED) The apparatus of Claim 20, wherein the pressure source comprises an annulus about the heat source.

27. (AMENDED) The apparatus of Claim 24, further comprising a deflector and a baffle in the line of hot air to redirect hot air from one location along the deflector to another location along the deflector.

28. (AMENDED) The apparatus of Claim 20, wherein the pressure source comprises a roller and wherein the film rotates on the roller prior to application to the surface.

29. (AMENDED) A method of saving labor of adhering an adhesive-coated film to a substrate having a surface, comprising:

- (a) distributing a film to a party that has been taught to use the method of Claim 34;
- (b) optionally permitting such party to print an image on the film; and
- (c) permitting such party to use the method to adhere the film to a surface of the substrate.

34. (NEW) A method of applying an adhesive-coated film to a substrate, the method comprising:

providing a film comprising pressure sensitive adhesive coated on a major surface of the film;

heating the film to the softening point of the film; and

pressing the film against a substrate with a Heat Neutral Pressure Source after heating the film, wherein the pressure sensitive adhesive on the major surface of the film adheres to the substrate.

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35. (NEW) A method according to claim 34, wherein the heating comprises heating the film using hot air.

36. (NEW) A method according to claim 34, wherein the heating comprises heating the film using infrared radiation.

37. (NEW) A method according to claim 34, wherein the Heat Neutral Pressure Source comprises a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F.

38. (NEW) A method according to claim 34, wherein the Heat Neutral Pressure Source comprises open cell foam material.

39. (NEW) A method according to claim 34, wherein the Heat Neutral Pressure Source comprises a roller.

40. (NEW) A method according to claim 34, wherein the substrate comprises a highly textured surface

41. (NEW) A method according to claim 34, wherein the substrate comprises a wall.

42. (NEW) A method according to claim 34, wherein the substrate comprises a truck trailer wall.

43. (NEW) A method according to claim 34, wherein the adhesive comprises heat-activated adhesive.

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44. (NEW) A method according to claim 34, wherein the adhesive comprises pressure-activated adhesive.
45. (NEW) A method of applying an adhesive-coated film to a wall, the method comprising:
providing a film comprising adhesive coated on a major surface of the film;
heating the film to the softening point of the film; and
pressing the film against a wall with a Heat Neutral Pressure Source, wherein the adhesive on the major surface of the film adheres to the wall.
46. (NEW) A method according to claim 45, wherein the pressing is performed after heating the film to the softening point of the film.
47. (NEW) A method according to claim 45, wherein the heating comprises heating the film using hot air.
48. (NEW) A method according to claim 45, wherein the heating comprises heating the film using infrared radiation.
49. (NEW) A method according to claim 45, wherein the Heat Neutral Pressure Source comprises a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F.
50. (NEW) A method according to claim 45, wherein the Heat Neutral Pressure Source comprises open cell foam material.
51. (NEW) A method according to claim 45, wherein the Heat Neutral Pressure Source comprises a roller.

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52. (NEW) A method according to claim 45, wherein the wall comprises a highly textured surface.

53. (NEW) A method according to claim 45, wherein the wall comprises a truck trailer wall.

54. (NEW) A method according to claim 45, wherein the adhesive comprises pressure sensitive adhesive.

55. (NEW) A method according to claim 45, wherein the adhesive comprises heat-activated adhesive.

56. (NEW) A method according to claim 45, wherein the adhesive comprises pressure-activated adhesive.

57. (NEW) A method of applying an adhesive-coated film to a substrate, the method comprising:

providing a film comprising adhesive coated on a major surface of the film;

heating the film to the softening point of the film using a heat source; and

pressing the film against a substrate with a Heat Neutral Pressure Source, the Heat Neutral Pressure Source comprising a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F, wherein the adhesive on the major surface of the film adheres to the substrate.

58. (NEW) A method according to claim 57, wherein the heating comprises heating the film using hot air.

59. (NEW) A method according to claim 57, wherein the heating comprises heating the film using infrared radiation.

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60. (NEW) A method according to claim 57, wherein the Heat Neutral Pressure Source comprises open cell foam material.
61. (NEW) A method according to claim 57, wherein the substrate comprises a highly textured surface.
62. (NEW) A method according to claim 57, wherein the substrate comprises a wall.
63. (NEW) A method according to claim 57, wherein the substrate comprises a truck trailer wall.
64. (NEW) A method according to claim 57, wherein the adhesive comprises pressure sensitive adhesive.
65. (NEW) A method according to claim 57, wherein the adhesive comprises heat-activated adhesive.
66. (NEW) A method according to claim 57, wherein the adhesive comprises pressure-activated adhesive.

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REMARKS

Claims 1-19, 32, and 33 having been cancelled, claims 20-29 having been amended, and claims 34-66 having been added, the pending claims are claims 20-31 and 34-66.

Specification Objections/Amendments

The objections noted in the Office Action have been addressed in the amended paragraphs. In addition, Applicants have also corrected various other typographical errors in the application as filed.

For example, the second occurrence of the word "film" in line 31 on page 5 has been corrected to read "device." A spelling error in the word "interstices" on page 6, line 3 has also been corrected in the same paragraph.

Furthermore, Applicants have deleted the last sentence of the paragraph beginning on page 6, line 17.

Entry of these amendments to the specification are respectfully requested.

Applicants also note that "[t]he specification is objected to as failing to provide proper antecedent basis for the claimed subject matter" with respect to claim 31. Applicants note, however, that claim 31 was submitted with the application as filed. At a minimum, therefore, the claim serves as its own disclosure. As for antecedent basis of the terms used in claim 31, Applicants note that all of the terms used in claim 31 are present in the specification as filed. For example, "removable adhesive" is discussed in the paragraphs beginning on page 9, line 24; page 16, line 1; page 16, line 6; etc.

Reconsideration and withdrawal of this objection are, therefore, respectfully requested.

Miscellaneous Claim Amendments

Applicants have also provided a number of other amendments to claims 20, 21, 25, 26, and 28 introducing the word "comprising" that do not limit the scope of the claims in any respect.

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Rather, these amendments may, in fact, broaden to scope of the claims because of the open-ended interpretation of the word "comprising."

Further, Applicants have also deleted language from claim 20 ("at an intersecting location," "the surface where," and "contacts the surface") that is believed to be superfluous. These amendments are also submitted as not limiting the scope of claim 20.

Applicants have also amended claim 20 to recite that the "pressure source comprises a Heat Neutral Pressure Source."

In addition, Applicants have also amended claim 20 to recite that "the heat source and the pressure source do not simultaneously apply heat and pressure to the same location on the film." Support for this amendment can be found in the application as originally filed at, e.g., page 7, line 18 to page 8, line 9 and page 10, line 29 to page 11, line 9.

Rejections Under 35 U.S.C. § 112

Claims 1-33 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

The comments regarding the phrase "Heat Neutral Pressure Source" have been noted. Although many of the claims rejected have been canceled in this response, Applicants will address the comments as the phrase does appear in many of the pending claims.

Although the phrase is not a "generally recognized term of art" as discussed in the Office Action, Applicants note that the phrase is defined in the application as filed at, e.g., page 5, lines 17-21. Furthermore, Applicants submit that claims are not required to include only "generally recognized terms of art." In view of the explicit definition of the phrase "Heat Neutral Pressure Source" in the application as filed, Applicants respectfully submit that the requirements of 35 U.S.C. § 112, second paragraph, are met by the claims including that phrase.

With respect to the comments in the Office Action regarding the use of the term "article" in the preambles of claims 20-28, Applicants have amended those claims to recite "apparatus" as

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suggested in the Office Action. It should be noted for the purposes of claim interpretation, however, that these amendments do not limit the scope of the claims in any respect. Rather, these amendments may broaden to scope of the claims because, e.g., it can be asserted that an apparatus can be composed of many different articles.

In view of the above, Applicants respectfully submit that the pending claims to satisfy the requirements of 35 U.S.C. § 112, second paragraph. Reconsideration and withdrawal of any rejections based thereon are respectfully requested.

Rejections of Claims 20-28 under 35 U.S.C. §§ 102 & 103(a)

Claims 20-28 were rejected under 35 U.S.C. §§ 102 & 103(a) as being unpatentable over Gladen (U.S. Patent No. 3,562,059). Applicants respectfully traverse this rejection.

Gladen discloses a conventional heated platen press in which heat and pressure are simultaneously applied over the surface of the film to laminate the film to a foam.

In contrast, Claim 20 recites an apparatus including a heat source and a pressure source, wherein the heat source and the pressure do not apply heat and pressure to the same location on the film at the same time.

As a result, Applicants respectfully submit that claim 20 and its dependent claims 21-28 are not anticipated by Gladen.

With respect to obviousness, Applicants note that no suggestion or motivation is identified that would lead one of skill in the art to separate the application of heat and pressure to the film and foam composites manufactured by Gladen.

Furthermore, many of the dependent claims recite features that are not disclosed or suggested by Gladen. For example, claims 21, 21, 24, and 27 recite heat sources that use radiant energy or hot air, neither of which are disclosed or suggested by Gladen. Also, claims 25, 26, and 28 recite constructions for the pressure source that are not disclosed or suggested by Gladen.

For the above reasons, Applicants respectfully submit that claims 20-28 are patentable

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over Gladen. Reconsideration and withdrawal of these rejections are, therefore, respectfully requested.

Rejections of Method Claims 1-19, 29, and 32-33

Applicants note that claims 1-19 and 32-33 have been canceled and that claim 29 now recites the method of new claim 34. As a result, Applicants respectfully submit that the rejections of these claims over Raabe et al. (U.S. Patent No. 4,370,374) or Hargarter et al. (U.S. Patent No. 5,674,600) (either alone or in view of Gladen (U.S. Patent No. 3,562,059)) have been rendered moot.

Rejection of Claims 30 and 31

Claims 30 and 31 were rejected over Ullmann et al. (U.S. Patent No. 6,126,011) as being anticipated or, in the alternative, obvious. Applicants traverse these rejections for the following reasons.

Independent claim recites a "Heat Neutral Pressure Source" that is not disclosed by Ullmann et al. As noted above, the phrase "Heat Neutral Pressure Source" defines a particular pressure source and there is no indication in the Office Action as to where such a pressure source is disclosed by Ullmann et al.

Further, the claims are not *prima facie* obvious. To establish a *prima facie* case of obviousness, the rejection must include an identification of some suggestion or motivation, either in the cited reference or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Also, the prior art reference must teach or suggest all the claim limitations. *See* M.P.E.P. § 2143.

Claims 30 and 31 are not *prima facie* obvious because Ullmann et al. does not teach or suggest all the claim limitations and the Office Action fails to identify some suggestion or motivation to modify the cases of Ullmann et al. to include a Heat Neutral Pressure Source in combination with a heat source.

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For the above reasons, Applicants respectfully submit that claims 30 and 31 are patentable over Ullmann et al. Reconsideration and withdrawal of this rejection are, therefore, respectfully requested.

CONCLUSION

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

CERTIFICATE UNDER 37 C.F.R. §1.8:

The undersigned hereby certifies that this paper is being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on this 19th day of November 2001.


Kevin W. Raasch


Respectfully submitted,

Swanson et al.,

By their Representatives,

Mueting, Raasch & Gebhardt, P.A.
P.O. Box 581415
Minneapolis, MN 55458-1415
(612)305-1220

19 NOVEMBER 2001
Date

By: 
Kevin W. Raasch
Reg. No. 35,651
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**APPENDIX A - AMENDMENTS INCLUDING NOTATIONS TO INDICATE CHANGES
MADE**

**Serial No.: 09/479,648
Docket No.: 54655US009**

Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted. Additionally, all amendments have been shaded.

In the Specification

The paragraph beginning at page 5, line 17, has been amended as follows:

For purposes of this invention, a "Heat Neutral Pressure Source" is a pressure source that has thermal conductivity characteristics and surface characteristics at the point of contact ~~the~~ the film such that the film, when nearly melted, will not adhere to the Heat Neutral Pressure Source during application in accordance with the method of the present invention to a surface.

The paragraph beginning at page 5, line 29, has been amended as follows:

With respect to the surface characteristics of the Heat Neutral Pressure Source, the film-contacting portion of the device has a geometry such that a soft or melted film does not distort or adhere to the ~~material~~ material in a manner that would result in tearing or other such damage to the film. Thus, for example, while cotton is a material that is low in thermal conductivity, a cotton glove may be unsuitable for use as a Heat Neutral Pressure Source for certain film materials because its surface presents fibers and other such irregularities that provide ~~irregularities~~ irregularities ~~for~~ for flow of a highly softened or melted film therein and furthermore adheres to many highly soften films. The surface characteristics of a cotton glove, therefore, leads to disruption of the appearance of the film in an attempt to carry out the process of this invention.

The paragraph beginning at page 6, line 17, has been amended as follows:

Preferably, the pressure source is compressive to allow full contact of the film to be adhered ~~to~~ to with the substrate ~~to be adhered to~~. Thus, if an intended substrate contains a rivet

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that stands out from the plane of the substrate, a pressure source that is not compressive will not conform around the protruding rivet, and thus will allow non-contact or "tenting" of the film to occur at the base of the rivet. A preferred pressure source will allow full conformation or compliance of the pressure source around any surface irregularity to be encountered in the intended application. [REDACTED]

In the Claims

For convenience, all pending claims are shown below.

20. (AMENDED) An [REDACTED] for softening a film and adhering the film to a surface of a substrate, the [REDACTED] comprising:

- a) a heat source; and
- b) a pressure source;

wherein the pressure source [REDACTED] and wherein the heat source and the pressure source direct heat and pressure [REDACTED] on [REDACTED] the film [REDACTED] and the pressure source [REDACTED] apply heat and pressure to the same [REDACTED].

21. (AMENDED) The [REDACTED] of Claim 20, wherein the heat source [REDACTED] [REDACTED] at least one nozzle for directing heat toward the film.

22. (AMENDED) The [REDACTED] of Claim 20, wherein the heat source operates at a temperature of greater than about 150°C.

23. (AMENDED) The [REDACTED] of Claim 20, wherein the heat source generates radiant energy.

24. (AMENDED) The ~~method of claim 20~~ of Claim 20, wherein the heat source generates hot air.

25. (AMENDED) The ~~method of claim 20~~ of Claim 20, wherein the pressure source ~~comprises~~ a roller.

26. (AMENDED) The ~~method of claim 20~~ of Claim 20, wherein the pressure source ~~comprises~~ an annulus about the heat source.

27. (AMENDED) The ~~method of claim 24~~ of Claim 24, further comprising a deflector and a baffle in the line of hot air to redirect hot air from one location along the deflector to another location along the deflector.

28. (AMENDED) The ~~method of claim 20~~ of Claim 20, wherein the pressure source ~~comprises~~ a roller and wherein the film rotates on the roller prior to application to the surface.

29. (AMENDED) A method of saving labor of adhering an adhesive-coated film to a substrate having a surface, comprising ~~the steps of~~:

- (a) distributing a film to a party that has been taught to use the method of Claim ~~1~~;
- (b) optionally permitting such party to print an image on the film; and
- (c) permitting such party to use the method to adhere the film to a surface of the substrate.

34. (NEW) ~~A method of applying an adhesive-coated film to a substrate, the method comprising~~

For 60 days after completion of the service, a letter will be sent to the member's family.

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Re: Griffin, John Anthony Subject: SA [redacted] NAACP Branch, Chicago, Ill. 10/15/54

There is a lot of pressure coming out of the media and the public to get

Substrate

35. (NEW) _____

0519:10:111

36. (NEW) A metal 40-gram ball is thrown horizontally from the top of a 100-meter cliff. It is launched with an initial velocity of 10 m/s. Neglect air resistance. How far from the base of the cliff will the ball land?

rising milk production

37. (NEW) A method as in claim 1, wherein the fluid is an aqueous solution.

comprise all thermal conditions above and below 100°C and 100°C.

38. (NEW) A piston and crank mechanism is shown in the figure. The crank is of length 10 cm and the piston is of length 15 cm. The crank is at an angle of 30° to the horizontal. The piston is at an angle of 60° to the horizontal. The crank is rotating with an angular velocity of 1000 rpm. The piston is moving with a linear velocity of 10 m/s. The crank is connected to the piston by a connecting rod of length 20 cm. The crank is at the bottom of the cylinder and the piston is at the top. The cylinder is of diameter 10 cm. The crank is at the bottom of the cylinder and the piston is at the top. The cylinder is of diameter 10 cm.

COMPENSATION OF THE FEDERAL JUDICIAL BRANCH

39. (NEW) A method according to claim 14, wherein the said Neural Protein-Silk-Silk

COMPRESSOR

40. (NEW) A method according to claim 14, wherein the substrate comprises a highly

textured surface

41. (NEW) A method according to claim 34, wherein the substrate comprises a wall

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42. (NEW) A method according to claim 34, wherein the substrate comprises a wall
wall

43. (NEW) A method according to claim 34, wherein the adhesive comprises a hot melt
adhesive

44. (NEW) A method according to claim 34, wherein the adhesive comprises a hot melt
hot melt adhesive

45. (NEW) A method according to claim 34, wherein the adhesive is applied to the
provisional film surface for adhesive coating on a major surface of the film
heating the film to the softening point of the film and
pressing the film against a wall with a Heat Neutral Pressure Squeegee where the
adhesive on the major surface of the film adheres to the wall

46. (NEW) A method according to claim 35, wherein the pressure is maintained after heating
the film to the softening point of the film

47. (NEW) A method according to claim 35, wherein the heating comprises heating the film
using infrared

48. (NEW) A method according to claim 35, wherein the heating comprises heating the film
using infrared radiation

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49. (NEW) A method according to claim 45, wherein the heat transfer surface comprises a thermal conductive material.

50. (NEW) A method according to claim 45, wherein the heat transfer surface comprises a fluid conductive material.

51. (NEW) A method according to claim 45, wherein the heat transfer surface comprises a solid.

52. (NEW) A method according to claim 45, wherein the wall comprises a porous material surface.

53. (NEW) A method according to claim 45, wherein the wall comprises a fluid conductive wall.

54. (NEW) A method according to claim 45, wherein the adhesive comprises a sensitive adhesive.

55. (NEW) A method according to claim 45, wherein the adhesive comprises a heat sensitive adhesive.

56. (NEW) A method according to claim 45, wherein the adhesive comprises a pressure activated adhesive.

57. (NEW) A method of applying an adhesive-coated film to a substrate, the method comprising:

providing a film comprising adhesive coated on a major surface of the film;

Amendment and Response - Appendix A

Page A-7

Applicant(s): Steelman et al.

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

58. (NEW) [REDACTED]

59. (NEW) [REDACTED]

60. (NEW) [REDACTED]

61. (NEW) [REDACTED]

62. (NEW) [REDACTED]

63. (NEW) [REDACTED]

64. (NEW) [REDACTED]

Amendment and Response - Appendix A

Page A-8

Applicant(s): Steelman et al.

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65. (NEW) A method of applying adhesive to a substrate, comprising:
applying the adhesive to the substrate.

66. (NEW) A method of applying adhesive to a substrate, comprising:
applying the adhesive to the substrate.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Steelman et al.) Group Art Unit: 1733
Serial No.: 09/479,648) Examiner: J.J. Gallagher
Confirmation No.: Unknown)
Filed: January 7, 2000)
For: METHOD OF APPLYING ADHESIVE COATED FILM

PETITION FOR EXTENSION OF TIME

Assistant Commissioner for Patents
Washington, DC 20231


Sir:

In accordance with the provisions of 37 C.F.R. §1.136(a), it is respectfully requested that a one-month extension of time be granted in which to respond to the outstanding Office Action mailed 17 July 2001, thereby extending the date on which the period of response is set to expire from 17 October 2001 to 17 November 2001. Because 17 November 2001 falls on a Saturday, the request is effective for a carryover to 19 November 2001, the next business day.

Please charge Deposit Account No. 13-4895 in the amount of \$110.00 to cover the required extension fee. Please charge any additional fees or credit any over-payment to PTO Deposit Account No.13-4895.

CERTIFICATE UNDER 37 C.F.R. §1.8:

The undersigned hereby certifies that this paper is being deposited in the United States Postal Service, as first class mail, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on this 19th day of November, 2001.



Kevin W. Raasch

Respectfully submitted for

Steelman et al.

By
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19 NOVEMBER 2001
Date

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APPENDIX IV.

Serial No.: 09/479,648

Docket No.: 54655US009

Nonfinal Office Action mailed from the U.S. Patent and Trademark Office on April 9,
2002.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/479,648	01/07/2000	RONALD S. STEELMAN	54655USA1B-CC9	3344

7590

04/09/2002

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PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY

EXAMINER

GALLAGHER, JOHN J

ART UNIT

PAPER NUMBER

1733

APR 12 2002

DATE MAILED: 04/09/2002

REFERRED TO: _____

Please find below and/or attached an Office communication concerning this application or proceeding.

07/09/02

JDC

me

6-9-02 Resp 2mo
7-9-02 Resp 3mo
10-9-02 Resp Start

Office Action Summary

Application No. 07-116,663

Applicant(s) MF/

Examiner

Group Art Unit

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 08-THU-APR-2002
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 20-31 and 34-66 is/are pending in the application.
- Of the above claim(s) 20-31, 34-66 and 64 is/are withdrawn from consideration.
- ☒ Claim(s) 20-31, 34-66 and 64 is/are allowed.
- ☒ Claim(s) 20-31, 34-66 and 64 is/are rejected.
- ☒ Claim(s) 44 is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

Art Unit 1733

1. Paragraph 2 of the last Office action is hereby reiterated; this claim and the disclosure should be brought into correspondence.

2. Claim 44 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitations of this claim have apparently already been incorporated into claim 34.

3. Claim 43 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Specifically, this claim is seen to be inconsistent with claim 34 (i.e. pressure sensitive vs. heat activated adhesive).

4. Claims 41-42, 45-56 and 62-63 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, applicants' specification apparently clearly indicates (N.B. page 3 lines 26-31 and page 4 lines 11-22) that the envisioned method is

Art Unit 1733

intended for use on a truck trailer SIDE and NOT on an unspecified wall i.e. it is clearly stated (N.B. page 4 lines 17-19) that the vehicle environment disclosed constitutes a "vastly different" environment and prior art area than the generalized wall application now claimed. This could be considered to be a new matter rejection; further along this line, however, N.B. paragraph 25 of Corometrics v. Berkeley 193 USPQ 467.

5. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 20 and 22-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gladen (already of record - see paragraph 5 of the last Office action). The modification of the apparatus of this patentee to allow for the independent operation of the heat and pressure application means fail to constitute an obvious expedient to those of ordinary skill in this art, in that it has long been appreciated and accepted that in general concurrently performed steps are equivalent to those performed

Art Unit 1733

successively (In re White 5 USPQ 267), especially when the steps are PHYSICAL in nature (as in the instant situation viz. heating and pressing). Further along this line, the Teflon pad of this patentee is held to indeed constitute a HNPF i.e. it is seen to satisfy the criteria (i.e. possess the properties and characteristics) set forth in applicants' specification at page 5 line 22 thru page 6 line 7.

7. Claims 57-61, 65-66, 21 and 24-28 are rejected, and claims 20 and 22-23 are further rejected under 35 U.S.C. § 103(a) as being unpatentable over Hargarter et al. in view of Gladen. This rejection is adhered to essentially for the reasons of record (see paragraph 10 of the last Office action); further along this line (a) N.B. column 6 line 66 thru column 7 line 1 and column 12 lines 24-2 of Hargarter et al.; and (b) with respect to claim 28 (i.e. the "wherein" clause), note that expressions relating an apparatus to the contents thereof during operation are of no significance in determining the patentability of an apparatus claim (Ex parte Thibault 164 USPQ 666; In re Rishoi 94 USPQ 71; Ex parte Cullen 132 USPQ 148).

8. Applicants' arguments filed 08 January 2002 have been fully considered but they are not deemed to be persuasive. See paragraphs 2-7, above.

9. In spite of the foregoing rejections, the Examiner feels that there is patentable subject matter present in this

Serial No. 09/479,648

-5-

Art Unit 1733

application at this point in prosecution, and therefore claims 29-31, 34-40 and 64 are indicated as being allowable, with the caveat that yet another updated search may uncover art more pertinent than that already of record.

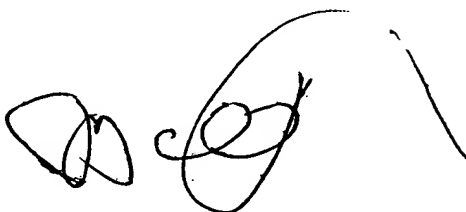
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. J. Gallagher whose telephone number is (703) 308-1971. The examiner can normally be reached on M-F from approximately 8:30 A.M. to 5 P.M. The examiner can also be reached on alternate N/A.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball, can be reached on (703) 308-2058. The fax phone number for this Group is (703) ~~305-3599~~ ⁸⁷²⁻⁹³¹⁰.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661/0662.

JJGallagher:cdc

March 25, 2002


JOHN J. GALLAGHER
PRIMARY EXAMINER
ART UNIT 131 1733

APPENDIX V.

Serial No.: 09/479,648

Docket No.: 54655US009

Amendment and Response filed July 9, 2002.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Ronald S. STEELMAN et al.)	Group Art Unit: 1733
)	
Serial No.: 09/479,648)	Examiner: J. Gallagher
Confirmation No.: 3344)	
)	
Filed: 7 January 2000)	
)	
For: METHOD OF APPLYING ADHESIVE COATED FILM	

AMENDMENT AND RESPONSE

Assistant Commissioner for Patents
Washington D.C. 20231

Dear Sir:

In response to the Office Action dated 9 April 2002, please amend the above-identified application as follows:

In the Claims

Please cancel claims 43-44.

Remarks

The Office Action dated 9 April 2002 has been received and reviewed. Claims 43-44 have been cancelled. The pending claims are claims 20-31, 34-42, and 45-66. Reconsideration and withdrawal of the rejections are respectfully requested.

Specification Objection

The specification was objected to as failing to provide proper antecedent basis for the claimed subject matter with respect to claim 31. Applicants traverse this objection.

Claim 31 was submitted with the application as filed. At a minimum, therefore, the claim

serves as its own disclosure.

Further, it is clear from the specification that the apparatus and methods of the present invention may be used with a variety of films, including films having removable adhesive coated thereon. For example, the present invention makes it possible to adhere films to trailers and other challenging environment areas with comparatively low stress and/or film memory, such that adhesives that are much less aggressive may now be used in these challenging environments. *See* Specification, page 9, lines 29-32. Thus, removable or repositionable adhesives may now much more readily be used. *Id.* at page 9, line 23 through page 10, line 1. In other words, one skilled in the art would understand that the kit of claim 31 may include a film having removable adhesive coated thereon.

As for antecedent basis of the terms used in claim 31, Applicants reiterate that all of the terms used in claim 31 are present in the specification as filed. For example, the term "removable adhesive" is discussed in the paragraphs beginning on page 9, line 24; page 16, line 1; page 16, line 6, etc. Reconsideration and withdrawal of this objection are, therefore, respectfully requested.

Claim Objections

Claims 43-44 were objected to as being of improper dependent form. Applicants have cancelled claims 43-44, thus rendering this objection moot.

The 35 U.S.C. § 112, First Paragraph, Rejection

Claims 41-42, 45-46, and 62-63 were rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Specifically, the Office Action alleges that the specification indicates that the envisioned method is intended for use on a truck trailer side and not on an unspecified wall. Applicants traverse this rejection.

Claims 41-42, 45-46, and 62-63 meet the requirements of 35 U.S.C. § 112, first paragraph, because one skilled in the relevant art would understand that the inventors had possession of the claimed invention at the time that the application was filed.

For example, claim 41 recites that the substrate includes a wall. The present invention provides "excellent adhesion of thermoplastic films to highly irregular or textured surfaces, such as concrete, cement block, stucco, brick, fabric surfaces, carpeted surfaces and the like." Specification, page 3, lines 29-31. Contrary to the allegations of the Office Action, the specification does not limit use of the present invention to sides of truck trailers because few, if any, truck trailers have sides that include concrete, cement block, stucco, brick or carpeted surfaces. On the other hand, one skilled in the art would understand that walls may include concrete, cement block, stucco, brick, fabric surfaces, carpeted surfaces, etc.

However, the Office Action further alleges that Applicants did not intend to use the present invention on walls because the specification at page 4, lines 17-19 states that the vehicle environment disclosed constitutes a "vastly different" environment and prior art area than the generalized wall application now claimed. Applicants traverse this allegation and submit that it is a mischaracterization of this passage of the specification.

In the specification beginning at page 4, line 11, Applicants draw an analogy between the present invention and the application of wallpaper to a wall. Applicants state that applying adhesive-coated film to challenging surfaces such as truck trailers is much more difficult than applying wallpaper to a wall because the wall "is usually even and does not contain compound geometrical or irregular surfaces." In contrast to applying wallpaper to such a wall, applying an adhesive-coated film to a substrate such as the side of a truck trailer "occurs in a vastly different environment" than applying wallpaper to a typical wall having no topographical irregularities. One skilled in the art would understand that this analogy does not limit the present invention to use with a truck trailer.

For at least the above reasons, Applicants submit that claims 41-42, 45-46, and 62-63 are patentable under 35 U.S.C. § 112, first paragraph. Reconsideration and withdrawal of this rejection are, therefore, respectfully requested.

The 35 U.S.C. § 103 Rejection

Claims 20 and 22-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gladen (U.S. Patent No. 3,562,059).

Applicants traverse this rejection and submit that claims 20 and 22-23 are not *prima facie* obvious in view of Gladen for at least the following reasons.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. *See* M.P.E.P. § 2143.

Claims 20 and 22-23 are not *prima facie* obvious because no motivation or suggestion is identified in the Office Action that would lead one of skill in the art to modify the teachings of Gladen to produce the present invention. The initial burden is on the Examiner to provide some suggestion of the desirability of doing what the inventor has done. *See* M.P.E.P. § 2142. This burden has not been satisfied with respect to the rejection of claims 20 and 22-23.

Claim 20 recites that the heat source and the pressure source do not simultaneously apply heat and pressure to the same location of the film. In contrast to claim 20, Gladen teaches a press that includes a piston 8 and a heating platen 9 mounted on the piston 8. The press simultaneously applies heat and pressure to a formed polymer body. *See, e.g.,* Gladen, column 2, lines 21-24. No motivation or suggestion is provided in the Office Action as to why one of skill in the art would modify Gladen such that the press taught by Gladen does not simultaneously

apply heat and pressure to the same location of the formed polymer body. Absent any identified motivation or suggestion to modify Gladen, claims 20 and 22-23 cannot be *prima facie* obvious.

Further, modifying Gladen as proposed by the Office Action would change the principle of operation of the invention taught by Gladen. If the proposed modification of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the reference is not sufficient to render the claims *prima facie* obvious. See M.P.E.P. § 2143.01. Modifying the press taught by Gladen as asserted in the Office Action such that heat and pressure are not simultaneously applied to the same location on the polymer body would change the principle of operation of the press. As a result, Applicants respectfully submit that the asserted motivation cannot form the basis for a proper *prima facie* obviousness rejection.

There is also no assertion that Gladen teaches all of the elements of claim 20. For example, claim 20 recites that the pressure source includes a Heat Neutral Pressure Source. As defined in the specification, a Heat Neutral Pressure Source is a pressure source that "has thermal conductivity characteristics and surface characteristics at the point of contact with the film such that the film, when nearly melted, will not adhere to the Heat Neutral Pressure Source during application in accordance with the method of the present invention to a surface." Specification, page 5, lines 17-21. The film-contacting portion of the Heat Neutral Pressure Source has a geometry such that "a soft or melted film does not distort or adhere to the device in a manner that would result in tearing or other such damage to the film." *Id.* at page 5, lines 29-32. In contrast to claim 20, Gladen teaches placing a teflon cloth on the film and foam prior to simultaneously applying heat and pressure. See Gladen, column 1, lines 63-66. After bonding, the teflon cloth is removed, leaving a "fine screen texture" in the foam and film. *Id.* at column 2, lines 4-11. In other words, the teflon cloth distorts the surface of the foam; therefore, the teflon cloth is not a Heat Neutral Pressure Source as alleged by the Office Action.

Claims 22-23, which depend from claim 20, are not *prima facie* obvious in view of Gladen for the same reasons as presented above for claim 20. In addition, claims 22-23 each recite additional elements that further support patentability when combined with claim 20.

For at least the above reasons, Applicants submit that claims 20 and 22-23 are not *prima facie* obvious in view of Gladen. Reconsideration and withdrawal of this rejection are, therefore, respectfully requested.

Claims 20-28, 57-61, and 65-66 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hargarter et al. (U.S. Patent No. 5,674,600) in view of Gladen.

Applicants traverse this rejection and submit that claims 20-28, 57-61, and 65-66 are not *prima facie* obvious because there is no motivation or suggestion to combine the teachings of Hargarter et al. and Gladen to produce the present invention. In fact, Gladen teaches away from being combined with Hargarter et al. It is improper to combine references where the references teach away from their combination. *See* M.P.E.P. § 2145.

For example, Gladen teaches a method of decorating plastics such that the plastics do not require pretreatment, e.g., flame treatment. *See* Gladen, column 1, lines 26-31. Hargarter et al., on the other hand, teaches a method of bonding a laminating film to porous substrates. *See* Hargarter et al., column 6, lines 55-57. In each example given, Hargarter et al. pretreats the porous substrates prior to bonding the laminating films onto the substrates. For example, Hargarter et al. teaches laminating the films to "the corona pretreated side of a conventional commercial single layer TPU film" *Id.* at column 11, lines 44-49. Further, Hargarter et al. teaches attaching the disclosed films to substrates that "were flame-laminated textile/cut foam/Walopur 2102 AK, 35 μ m @ [sic] structures. The tapes were stuck to the corona pretreated side of the Walopur 2102 AK." In other words, Hargarter et al. teaches that the substrates are pretreated prior to being bonded with the disclosed laminating films. This is in direct contrast to the teachings of Gladen. Therefore, one skilled in the art would not be motivated to combine the teachings of Hargarter et al. and Gladen to produce the present invention.

Amendment and Response

Page 7 of 8

Serial No.: 09/479,648

Confirmation No.: 3344

Filed: 7 January 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

For at least the above reasons, Applicants submit that claims 20-28, 57-61, and 65-66 are not *prima facie* obvious in view of the cited references. Reconsideration and withdrawal of this rejection are, therefore, respectfully requested.

Allowable Subject Matter

Applicants acknowledge that claims 29-31, 34-40, and 64 recite allowable subject matter.

Amendment and Response

Page 8 of 8

Serial No.: 09/479,648

Confirmation No.: 3344

Filed: 7 January 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

Summary

It is respectfully submitted that the pending claims are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
Ronald S. STEELMAN et al.

By
Mueting, Raasch & Gebhardt, P.A.
P.O. Box 581415
Minneapolis, MN 55458-1415
Phone: (612) 305-1220
Facsimile: (612) 305-1228
Customer Number 26813



26813

PATENT & TRADEMARK OFFICE

09 JULY 2002
Date

By:

Kevin W. Raasch
Reg. No. 35,651
Direct Dial (612)305-1218

CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Washington, D.C. 20231, on this 9th day of July, 2002, at 2:25 p.m. (Central Time).

By:
Name: Rachel Gaylinde-Gebhardt

APPENDIX VI.

Serial No.: 09/479,648

Docket No.: 54655US009

Final Office Action mailed from the U.S. Patent and Trademark Office on October 7,
2002.

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/479,648	01/07/2000	RONALD S. STEELMAN	54655USA1B/009 <i>US009</i>	3344

7590

10/07/2002

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OFFICE OF INTELLECTUAL
PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY

EXAMINER

GALLAGHER, JOHN J

ART UNIT

PAPER NUMBER

1733

13

OCT 11 2002

DATE MAILED: 10/07/2002

12/7/02
1/7/03
4/7/03
JDC
MAILED BY *[Signature]*

REFERRED TO

12/7/02 FR 2mo
1/7/03 FR 3mo
4/7/03 FR Std
OK

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/277048

Applicant(s)

Examiner

Group Art Unit

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☒ Responsive to communication(s) filed on 9 Jan 2006
- ☐ This action is FINAL
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 20-31, 34-36 and 45-66 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) 29-31, 34-36 and 67 is/are allowed.
- ☐ Claim(s) 20-28, 41-42, 45-63 and 65-66 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

Art Unit 1733

1. Before proceeding further, the following are noted:

(a) The word "fail" in line 5 of paragraph 6 of the last Office action should read (and should have read) "is seen"; Examiner error - mea culpa; (b) the term "In the pertinent art of the present invention" at page 4 line 17 of applicants' specification is not understood in the context in which presented i.e. is apparently misplaced; and (c) a substitute specification was apparently submitted with the latest amendment, which substitute (1) was not requested or required by the Examiner; and (2) is apparently unnecessary.

2. Paragraph 1 of the last Office action is hereby reiterated; inserting the term "; a film having removable adhesive coated thereon may also be included" after "substrate" (and before the period) at page 8 line 31 of applicants' specification would effectively overcome this objection WHILE AT THE SAME TIME TAKE NOTHING AWAY FROM THE APPLICANTS AND/OR THEIR INTENT.

3. Claims 41-42, 45-56 and 62-63 are rejected under 35 U.S.C. § 112, first paragraph; this rejection is adhered to essentially for the reasons of record (see paragraph 4 of the last Office action), with the following being additionally advanced: (a) The entire tenor of applicants' specification (i.e. N.B. e.g. page 1 line 21, page 3 lines 18 and 30 and page 4 line 19) is seen to fairly and clearly indicate that applicants

Art Unit 1733

intended and envisioned inventive method is directed to and concerned with the application of adhesive films to IRREGULARLY surfaced substrates as opposed to the unspecified, unqualified and generalized "WALL" substrate as now claimed; and (b) claim 14 line 2 - the word "wall" should apparently read "side", consistent with applicants' specification at page 4 line 18 (and also page 3 line 27).

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 20 and 22-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Gladen.

6. Claims 57-61, 65-66, 21 and 24-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hargarter et al. in view of Gladen.

7. Applicants' arguments filed 9 July 2002 have been fully considered but they are not deemed to be persuasive. The foregoing art rejections are adhered to essentially for the reasons of record (see paragraphs 6-7 of the last Office action),

Art Unit 1733

with the following being additionally advanced: In response to applicants' arguments and contentions made in the amendment at (a) page 4 line 4 thru page 6 line 3 (and especially page 4 lines 15-19, page 4 line 24 thru page 5 line 2, page 5 lines 3-10 and page 5 lines 17-24) (1) motivation and/or suggestion to modify the Gladen teaching is fairly and clearly set forth at lines 3-15 of paragraph 6 of the last Office action; (2) this (foregoing) modification of the Gladen teaching proposed by the Examiner is seen not to compromise the general principle set forth therein, which principle is to supply and apply sufficient heat and pressure to effect satisfactory lamination between the parts to be bonded; and (3) the "fine screen texture" provided for and imparted by the Teflon cloth of Gladen can hardly be equated with the "distortion, tearing or other such damage" referred to as being avoided by applicants' envisioned HNBS, this aforementioned texture being fairly and clearly disclosed by Gladen (N.B. column 2 lines 9-12) as being beneficial and advantageous; and (b) page 6 lines 6-24 (1) the pretreatments (e.g. corona discharge treatment) provided for by Hargarter et al. are fairly and clearly disclosed and indicated as being OPTIONAL (N.B. column 7 lines 45-47); and (2) it is reiterated (see paragraph 10 of the FIRST Office action mailed 17 July 2001) that the beneficial function and results (viz. non-stick pressure application, appealing and/or improved appearance etc.) deriving from and

Art Unit 1733

provided by the Teflon cloth pressure pad of Gladen would render its use in/in conjunction with the process of Hargarter et al. obvious to those of ordinary skill in this art.

8. **THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a). The practice of automatically extending the shortened statutory period an additional month upon the filing of a timely first response to a final rejection has been discontinued by the Office. See 1021 TMOG 35.

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

9. In spite of the foregoing rejections, the Examiner continues to feel that there is patentable subject matter present in this application at this point in the prosecution, and therefore claims 29-31, 34-40 and 64 are indicated as being

Serial No. 09/479,648

-6-

Art Unit 1733

allowable, with the caveat that yet another updated search may uncover art more pertinent than that already of record.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. J. Gallagher whose telephone number is (703) 308-1971. The examiner can normally be reached on M-F from approximately 8:30 A.M. to 5 P.M. The examiner can also be reached on alternate N/A.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball, can be reached on (703) 308-2058. The fax phone number for this Group is (703) ~~305-3599~~ ⁸⁷²⁻⁹³¹¹.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661/0662.


JJGallagher:cdc

September 23, 2002


JOHN J. GALLAGHER
PRIMARY EXAMINER
ART UNIT 1733

APPENDIX VII.

Serial No.: 09/479,648

Docket No.: 54655US009

Amendment and Response Under 37 C.F.R. § 1.116 filed December 5, 2002.

OFFICIAL
Expedited Examining Procedure
Group 1733

PATENT
Docket No. 54655US009
(formerly 54655USA1B.009)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Ronald S. STEELMAN et al.)	Group Art Unit: 1733
)	
Serial No.: 09/479,648)	Examiner: John J. Gallagher
Confirmation No.: 3344)	
)	
Filed: 7 January 2000)	
)	
For: METHOD OF APPLYING ADHESIVE COATED FILM	

AMENDMENT AND RESPONSE UNDER 37 CFR §1.116

Assistant Commissioner for Patents
Attn: BOX AF
Washington D.C. 20231

Dear Sir:

In response to the Final Office Action mailed 7 October 2002, please amend the above-identified application as follows:

In the Specification

Please replace the paragraph beginning at page 4, line 11, with the following rewritten paragraph. Per 37 C.F.R. §1.121, this paragraph is also shown in Appendix A with notations to indicate the changes made.

-- As will be readily understood by anyone who has attempted to hang wallpaper, the application of an adhesive-coated film to a vertical surface is very cumbersome and time-consuming. Application of such materials to challenging surfaces such as truck trailers is that much more difficult. At the least the wall is usually even and does not contain compound geometrical or irregular surfaces. Typically, the size of a wallpaper section is about 70 cm wide

APPENDIX 7

and about 2.5 m long. The application of an adhesive-coated film to a vertical side of a truck trailer occurs in a vastly different environment: a substrate that is often filled with topographical irregularities and film sections having a size of about 120 cm wide and about 3m long. Very skilled persons are needed for this assembly, and such assembly takes very long times: on the order of 22 hours per truck trailer. --

Please replace the paragraph beginning at page 8, line 28, with the following rewritten paragraph. Per 37 C.F.R. §1.121, this paragraph is also shown in Appendix A with notations to indicate the changes made.

-- In another aspect of the present invention, a kit for application of heat and pressure is provided comprising a heat source adapted for application of heat to a film, and a pressure source that is heat neutral, which may be used in conjunction with the heat source for application of a film to an intended substrate; a film having a removable adhesive coated thereon may also be included. Another aspect of the present invention is to provide a unitary article for application of both heat and pressure to an adhesive coated film. --

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Filed: 7 January 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

Remarks

The Final Office Action mailed 7 October 2002 has been received and reviewed. Claims 20-31, 34-42, and 45-66 remain pending. Reconsideration and withdrawal of the rejections are respectfully requested.

Amendments to the Specification

Two amendments to the specification are presented for entry by the Examiner, with both amendments being presented pursuant to the request of the Examiner. Applicants respectfully submit that the amendments do not present new matter. Their entry is respectfully requested.

The 35 U.S.C. §112, First Paragraph, Rejection

The Examiner rejected claims 41-42, 45-46, and 62-63 under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner objects to the recitation of "wall" in the claims at issue. Applicants respectfully traverse this rejection for the following reasons.

When presenting a rejection for "written description" under 35 U.S.C. § 112, first paragraph, the proper standard to apply is whether one of ordinary skill in the art would recognize that Applicants had possession of the invention as claimed. Furthermore, the Office bears the burden of providing reasoning or evidence as to why one of ordinary skill in the art would not recognize that Applicants had possession of the claimed invention at the time the application was filed. *See, e.g.*, MPEP § 2163.02 (August 2001).

The rejection presented with respect to claims 41-42, 45-56 and 62-63 fails to apply the proper standard and/or provide reasoning or evidence as to why one of ordinary skill in the art would not recognize that Applicants had possession of the claimed invention. Rather, the

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rejection is based on assertions regarding the subjective intent of the Applicants. That is not the proper standard to apply.

As noted above, the proper standard is whether one of ordinary skill in the art would recognize that Applicants had possession of the invention as claimed. Given the wide variety of surfaces recited in the specification with which the invention could be used, Applicants submit that one of ordinary skill in the art would recognize that the Applicants clearly considered application of films using the methods and apparatus of the present invention to "walls" as falling within the scope of the invention as recited in claims 41-42, 45-56 and 62-63.

Further, Applicants note that the rejection includes a reference to "claim 14." *See*, Office Action, p. 3. l. 4-5. No claim 14 is pending in the application and, as such, Applicants respectfully request clarification of this portion of the rejection.

For the above reasons, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 41-42, 45-56 and 62-63 under § 112, first paragraph.

The 35 U.S.C. §103 Rejection

Claims 20 and 22-23 were rejected under 35 U.S.C. §103 as being unpatentable over Gladen (U.S. Patent No. 3,562,059).

Applicants incorporate herein all of the comments provided with respect to the rejections under § 103 over Gladen in previous responses.

Furthermore, Applicants respectfully submit that the Office has failed to establish a critical assertion on which the entire rejection is premised, namely that a Teflon cloth as disclosed by Gladen can be equated with a "Heat Neutral Pressure Source" as recited in independent claim 20. Applicants note that the film 5 of Gladen is heated through the Teflon cloth 11 by heated platen 9. As a result, the Teflon cloth must inherently be highly thermally conductive or the process of Gladen would not work. In other words, the film 5 and underlying foam 6 would not be heated by the platen 9 because the Teflon cloth 11 would not conduct thermal energy from the platen 9 and to the film 5 and foam 6 with any efficiency.

In contrast, the present invention provides a definition of the recited element, a "Heat Neutral Pressure Source," that precludes significant thermal energy transfer. "With respect to the thermal conductivity characteristics, the composition of the film-contacting portion of the Heat Neutral Pressure Source does not appreciably conduct heat either to or from the surface of the film as the film is applied under pressure to a surface on a substrate." Specification, p. 5, l. 22-25.

In view of the above, Applicants submit that Gladen cannot support the proposed rejection because it does not disclose or suggest a "Heat Neutral Pressure Source" as recited in claims 20 and 22-23. Furthermore, modification of Gladen to include a "Heat Neutral Pressure Source" would result in a process that does not work. Reconsideration and withdrawal of the rejection of claims 20 and 22-23 over Gladen are, therefore, respectfully requested.

Claims 21, 24-28, 57-61, and 65-66 were rejected under 35 U.S.C. §103 as being unpatentable over Hargarter et al. (U.S. Patent No. 5,674,600) in view of Gladen (U.S. Patent No. 3,562,059).

Applicants incorporate herein all of the comments provided with respect to the rejections under § 103 over Hargarter et al. in view of Gladen in previous responses.

Furthermore, Applicants note that the discussion presented above with respect to the failure of Gladen to teach or suggest a "Heat Neutral Pressure Source" as recited in claims 20 and 22-23 applies equally to the rejection of claims 21, 24-28, 57-61, and 65-66 over Hargarter et al. in view of Gladen. Hargarter et al. does not remedy the deficiencies of Gladen, nor is there any assertion that Hargarter et al. does so.

In fact, Hargarter et al. strengthens the arguments presented above with respect to, e.g., claim 25 in the current rejection. Hargarter et al. does so by disclosing only rollers that are either heated (Col. 7, l. 1), steel (Col. 12, l. 26), or rubber (Col. 12, l. 26). There is no discussion or suggestion in Hargarter et al. that a roll form of a "Heat Neutral Pressure Source" is to be supplied or used.

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With respect to claim 26, Applicants note that no support has been provided to indicate where any of the cited references disclose or suggest an annular "Heat Neutral Pressure Source" as recited in the claim.

With respect to claim 60, Applicants note that no support has been provided to indicate where any of the cited references disclose or suggest an "open cell foam" for a "Heat Neutral Pressure Source" as recited in the claim.

For the above reasons, reconsideration and withdrawal of the rejection of claims 21, 24-28, 57-61, and 65-66 over Hargarter et al. in view of Gladen are, therefore, respectfully requested.

Allowable Subject Matter

Applicants thank the Examiner for notification that claims 29-31, 34-40, and 64 recite allowable subject matter.

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Filed: 7 January 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

Summary

It is respectfully submitted that the pending claims 20-31, 34-42, and 45-66 are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
Ronald S. STEELMAN et al.

By

Mueting, Raasch & Gebhardt, P.A.

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Customer Number 26813



26813

PATENT TRADEMARK OFFICE

05 DECEMBER 2002

Date

By:

Kevin W. Raasch

Reg. No. 35,651

Direct Dial (612)305-1218

CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Attn: BOX AF, Washington, D.C. 20231, on this 5th day of December, 2002, at 3:15 p.m. (Central Time).

By: Rachel Gagnardi-Grabau

Name: Rachel Gagnardi-Grabau

**APPENDIX A - SPECIFICATION/CLAIM AMENDMENTS
INCLUDING NOTATIONS TO INDICATE CHANGES MADE**

Serial No.: 09/479,648

Docket No.: 54655US009 (formerly 54655USA1B.009)

Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted. Additionally, all amendments have been marked in bold typeface.

In the Specification

The paragraph beginning at page 4, line 11, has been amended as follows:

-- As will be readily understood by anyone who has attempted to hang wallpaper, the application of an adhesive-coated film to a vertical surface is very cumbersome and time-consuming. Application of such materials to challenging surfaces such as truck trailers is that much more difficult. At the least the wall is usually even and does not contain compound geometrical or irregular surfaces. Typically, the size of a wallpaper section is about 70 cm wide and about 2.5 m long. **[In the pertinent art of the present invention, t]** The application of an adhesive-coated film to a vertical side of a truck trailer occurs in a vastly different environment: a substrate that is often filled with topographical irregularities and film sections having a size of about 120 cm wide and about 3m long. Very skilled persons are needed for this assembly, and such assembly takes very long times: on the order of 22 hours per truck trailer. --

The paragraph beginning at page 8, line 28, has been amended as follows:

-- In another aspect of the present invention, a kit for application of heat and pressure is provided comprising a heat source adapted for application of heat to a film, and a pressure source that is heat neutral, which may be used in conjunction with the heat source for application of a film to an intended substrate; **a film having a removable adhesive coated thereon may also be included.** Another aspect of the present invention is to provide a unitary article for application of both heat and pressure to an adhesive coated film. --

APPENDIX VIII.

Serial No.: 09/479,648

Docket No.: 54655US009

Advisory Action issued from the U.S. Patent and Trademark Office on December 17,
2002.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMPTROLLER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/479,648	01/07/2000	RONALD S. STEELMAN	54655USA1B/009	3344

US009

7590 12/17/2002
OFFICE OF INTELLECTUAL PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY
P O BOX 33427
ST PAUL, MN 551333427

EXAMINER

GALLAGHER, JOHN J

ART UNIT	PAPER NUMBER
----------	--------------

1733

25

DATE (F)	<i>4/17/03</i>
LOCATED BY	<i>[Signature]</i>

OFFICE OF INTELLECTUAL
PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY

DATE MAILED: 12/17/2002

DEC 26 2002

1-7-03 FR 3ms.
4-7-03 FR Std

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory ActionApplication No.
09/479,848

Applicant(s)

STEELMAN et al

Examiner

John GALLAGHER

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED Dec 5, 2002 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid the abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

THE PERIOD FOR REPLY (check only a) or b))

- a) ☐ The period for reply expires _____ months from the mailing date of the final rejection.
- b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____, Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ they raise the issue of new matter (see NOTE below);
- (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____

3. ☐ Applicant's reply has overcome the following rejection(s): _____

4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because:
the rejections of record are seen to be both proper and tenable (and therefore are maintained).

6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.

7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: 29-31, 34-40, and 64

Claim(s) objected to: None

Claim(s) rejected: 20-28, 41, 42, 45-63, 65, and 66

Claim(s) withdrawn from consideration: None

8. ☐ The proposed drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.

9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

10. ☐ Other: _____

JOHN J. GALLAGHER
PRIMARY EXAMINER
ART UNIT 191-733

Advisory Action

Part of Paper No. 15

APPENDIX IX.

Serial No.: 09/479,648

Docket No.: 54655US009

Second Amendment and Response Under 37 C.F.R. § 1.116 filed February 6, 2003.

OFFICIAL
Expedited Examining Procedure
Group 1733

PATENT
Docket No. 54655US009
(formerly 54655USA1B.009)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	STEELMAN et al.	)	Group Art Unit:	1733
)		
Serial No.:	09/479,648	)	Examiner:	J.J. Gallagher
)		
Filed:	January 7, 2000	)	Confirmation No.	3344
For:	METHOD OF APPLYING ADHESIVE COATED FILM			

SECOND AMENDMENT AND RESPONSE UNDER 37 CFR § 1.116

Assistant Commissioner for Patents
Attn: BOX AF
Washington D.C. 20231

Dear Sir:

In response to the Final Office Action dated October 7, 2002, please amend the above-identified application as follows:

In the Claims

Please cancel claims 20-28, 41, 42, 45-56, and 62-66, all without prejudice.

Please amend claim 57 and enter and consider new claims 67-72. The amended and new claims are provided below in clean form. Per 37 C.F.R. §1.121, amended claims are also shown in Appendix A with notations to indicate changes made (for convenience, all pending claims, including those added hereby, are provided in Appendix A).

57. (AMENDED) A method of applying an adhesive-coated film to a substrate, the method comprising:

providing a film comprising pressure-sensitive adhesive coated on a major surface of the film;

heating the film to the softening point of the film using a heat source; and

pressing the film against a substrate with a Heat Neutral Pressure Source, the Heat Neutral Pressure Source comprising a Thermal Conductivity of less than $1.8 \text{ BTU/hr-in-ft}^2\text{-}^\circ\text{F}$, wherein the adhesive on the major surface of the film adheres to the substrate.

67. (NEW) A method of saving labor of adhering an adhesive-coated film to a substrate having a surface, comprising:

- (a) distributing a film to a party that has been taught to use the method of Claim 57;
- (b) optionally permitting such party to print an image on the film; and
- (c) permitting such party to use the method to adhere the film to a surface of the substrate.

68. (NEW) A kit according to claim 30, wherein the heat source generates hot air.

69. (NEW) A kit according to claim 30, wherein the heat source generates infrared radiation.

70. (NEW) A kit according to claim 30, wherein the Heat Neutral Pressure Source comprises a Thermal Conductivity of less than $1.8 \text{ BTU/hr-in-ft}^2\text{-}^\circ\text{F}$.

71. (NEW) A kit according to claim 30, wherein the Heat Neutral Pressure Source comprises open cell foam material.

72. (NEW) A kit according to claim 30, wherein the Heat Neutral Pressure Source comprises a roller.

REMARKS

Applicants received the Advisory Action dated 17 December 2002. Claims 20-28, 41, 42, 45-56, and 62-66 have been cancelled, and new claims 67-72 presented. Upon entry of the amended and new claims, claims 29-31, 34-40, 57-61, and 67-72 will be pending.

Although Applicants continue to respectfully disagree with the rejections presented in the Final Office Action of October 7, 2002, Applicants have canceled the rejected claims and made amendments to place the present application in condition for allowance and notice to that effect is respectfully requested. Applicants reserve the right to pursue the subject matter of the rejected claims and dispute the assertions made in support of the rejections of those claims in continuation applications.

Amended Claim 57

Applicants note that claim 64 was indicated as allowable in the Advisory Action and the Final Office Action. Claim 64 depended directly from independent claim 57. Applicants present herewith proposed amended claim 57 including the recitations of canceled claim 64.

As a result, Applicants respectfully submit that amended independent claim 57 and its dependent claims 58-61 are all in condition for allowance.

New Claim 67

New claim 67 is presented as a corollary to allowable claim 29. Allowable claim 29 recites a method involving the use of allowable independent method claim 34. New claim 67 recites the method of allowable claim 29, but substitutes the use of allowable independent method claim 57. As a result, Applicants respectfully submit that new claim 67 is supported by the application as filed (by, e.g., original claim 29 and at page 9, lines 8-14 of the Specification).

As a result, entry, consideration and allowance of independent claim 67 are respectfully requested.

Serial No.: 09/479,648

Filed: January 7, 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

New Claims 68-72

New claims 68-72, all of which depend from allowable claim 30 are presented for entry, consideration and allowance. The new claims provide more comprehensive protection for the claimed invention. Further, these claims recite features that are disclosed in the application as filed at, e.g., original claims 11, 12, 19, and 25, as well as in the Specification at, e.g., page 5, lines 22-28.

For the above reasons, Applicants respectfully request entry, consideration, and allowance of new claims 68-72.

CONCLUSION

It is respectfully submitted that claims 29-31, 34-40, 57-61, and 67-72 as presented herein are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

CERTIFICATE UNDER 37 C.F.R. §1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Attn: BOX AF, Washington, D.C. 20231, on this 6th day of February, 2003, at 12:56 P.M. (Central Time).

By: Rachel G. Lindeli - Gibson
Name: Rachel G. Lindeli - Gibson

Respectfully submitted,

STEELMAN et al.,

By their Representatives,

Mueting, Raasch & Gebhardt, P.A.
P.O. Box 581415
Minneapolis, MN 55458-1415
(612)305-1220

06 FEB. 2003
Date

By: Kevin W. Raasch
Kevin W. Raasch
Reg. No. 35,651
Direct Dial (612)305-1218

**APPENDIX A - AMENDMENTS INCLUDING NOTATIONS TO INDICATE CHANGES
MADE**

**Serial No.: 09/479,648
Docket No.: 54655US009**

Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted. Additionally, all amendments to preexisting claims have been put in bold typeface.

In the Claims

For convenience, all pending claims are shown below.

29. A method of saving labor of adhering an adhesive-coated film to a substrate having a surface, comprising:
- (a) distributing a film to a party that has been taught to use the method of Claim 34;
 - (b) optionally permitting such party to print an image on the film; and
 - (c) permitting such party to use the method to adhere the film to a surface of the substrate.
30. A kit for application of films to a substrate, comprising:
- a) a Heat Neutral Pressure source, and
 - b) a heat source adapted for applying heat to an adhesive coated film during application to a substrate.
31. The kit of claim 30, further comprising a film having removable adhesive coated thereon.
34. A method of applying an adhesive-coated film to a substrate, the method comprising:
- providing a film comprising pressure sensitive adhesive coated on a major surface of the film;
 - heating the film to the softening point of the film; and
 - pressing the film against a substrate with a Heat Neutral Pressure Source after heating the film, wherein the pressure sensitive adhesive on the major surface of the film adheres to the substrate.

35. A method according to claim 34, wherein the heating comprises heating the film using hot air.

36. A method according to claim 34, wherein the heating comprises heating the film using infrared radiation.

37. A method according to claim 34, wherein the Heat Neutral Pressure Source comprises a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F.

38. A method according to claim 34, wherein the Heat Neutral Pressure Source comprises open cell foam material.

39. A method according to claim 34, wherein the Heat Neutral Pressure Source comprises a roller.

40. A method according to claim 34, wherein the substrate comprises a highly textured surface.

57. (AMENDED) A method of applying an adhesive-coated film to a substrate, the method comprising:

providing a film comprising pressure-sensitive adhesive coated on a major surface of the film;

heating the film to the softening point of the film using a heat source; and

pressing the film against a substrate with a Heat Neutral Pressure Source, the Heat Neutral Pressure Source comprising a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F, wherein the adhesive on the major surface of the film adheres to the substrate.

58. A method according to claim 57, wherein the heating comprises heating the film using hot air.
59. A method according to claim 57, wherein the heating comprises heating the film using infrared radiation.
60. A method according to claim 57, wherein the Heat Neutral Pressure Source comprises open cell foam material.
61. A method according to claim 57, wherein the substrate comprises a highly textured surface.
67. (NEW) A method of saving labor of adhering an adhesive-coated film to a substrate having a surface, comprising:
- (a) distributing a film to a party that has been taught to use the method of Claim 57;
 - (b) optionally permitting such party to print an image on the film; and
 - (c) permitting such party to use the method to adhere the film to a surface of the substrate.
68. (NEW) A kit according to claim 30, wherein the heat source generates hot air.
69. (NEW) A kit according to claim 30, wherein the heat source generates infrared radiation.
70. (NEW) A kit according to claim 30, wherein the Heat Neutral Pressure Source comprises a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F.
71. (NEW) A kit according to claim 30, wherein the Heat Neutral Pressure Source comprises open cell foam material.

Appendix A

Serial No.: 09/479,648

Filed: January 7, 2000

For: METHOD OF APPLYING ADHESIVE COATEDFILM

Page A-4

72. (NEW) A kit according to claim 30, wherein the Heat Neutral Pressure Source comprises a roller.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): STEELMAN et al.	)	Group Art Unit:	1733
)		
Serial No.: 09/479,648	)	Examiner:	J. J. Gallagher
Confirmation No.: 3344)		
)		
Filed: January 7, 2000)		
)		
For: <u>METHOD OF APPLYING ADHESIVE COATED FILM</u>)		

PETITION FOR EXTENSION OF TIME

Assistant Commissioner for Patents
Attn: Box AF
Washington, DC 20231

Sir:

In accordance with the provisions of 37 C.F.R. §1.136(a), it is respectfully requested that a one-month extension of time be granted in which to respond to the outstanding Office Action mailed 7 October 2002 and the Advisory Action mailed 17 December 2002, thereby extending the date on which the period of response is set to expire from 7 January 2003 to 7 February 2003.

Please charge Deposit Account No. 13-4895 in the amount of \$110.00 to cover the required extension fee. Please charge any additional fees or credit any over-payment to PTO Deposit Account No. 13-4895.

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, **Attn: Box AF**, Washington, D.C. 20231, on this 6th day of February, 2003, at 12:56 p.m. (Central Time).

Signature: Rachel Gaylin-Gebhardt
Name: Rachel Gaylin-Gebhardt

06 FEB 2003
Date

Respectfully submitted for

STEELMAN et al.

By
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APPENDIX X.

Serial No.: 09/479,648

Docket No.: 54655US009

Advisory Action issued from the U.S. Patent and Trademark Office on February 28,
2003.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/479,648	01/07/2000	RONALD S. STEELMAN	54655H9ATB/009	3344

32692 7590 02/28/2003

3M INNOVATIVE PROPERTIES COMPANY
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ST. PAUL, MN 55133-3427

US009

EXAMINER

KNABLE, GEOFFREY L

ART UNIT

PAPER NUMBER

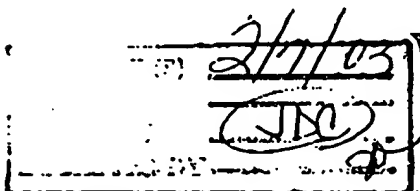
1733

OFFICE OF INTELLECTUAL
PROPERTY COUNSEL

3M INNOVATIVE PROPERTIES COMPANY

DATE MAILED: 02/28/2003

MAR 4 2003



19
3-7-03 FR Smil
4-7-03 FR Stat.

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action	Application No. 09/479,648	Applicant(s) STEELMAN ET AL.	
	Examiner Geoffrey L. Knable	Art Unit 1733	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

THE REPLY FILED 06 February 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☒ The period for reply expires 4 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 708.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.138(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on _____. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☒ The proposed amendment(s) will not be entered because:
- (a) ☒ they raise new issues that would require further consideration and/or search (see NOTE below);
 - (b) ☐ they raise the issue of new matter (see Note below);
 - (c) ☒ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
 - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet.

3. ☐ Applicant's reply has overcome the following rejection(s): _____
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: of the reasons of record.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☐ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

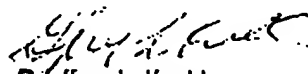
Claim(s) allowed: 29-31 and 34-40.

Claim(s) objected to: 64.

Claim(s) rejected: 20-28, 41, 42, 45-63, 65 and 66.

Claim(s) withdrawn from consideration: _____

8. ☐ The proposed drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
10. ☐ Other: _____


Geoffrey L. Knable
Primary Examiner
Art Unit: 1733

Continuation Sheet (PTO-303)

Application No.

09/479,648

Continuation of 2. NOTE: presentation of new dependent "kit" claims requires further consideration including appropriate assessment of compliance with 35 USC 112 first and second paragraphs. Further, new claim 67 presents new issues including issues of potentially duplicate claims.

APPENDIX XI.

Serial No.: 09/479,648

Docket No.: 54655US009

Third Amendment and Response Under 37 C.F.R. § 1.116 filed March 6, 2003.

OFFICIAL
Expedited Examining Procedure
Group 1733

PATENT
Docket No. 54655US009
(formerly 54655USA1B.009)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	STEELMAN et al.	)	Group Art Unit:	1733
)		
Serial No.:	09/479,648	)	Examiner:	J.J. Gallagher
)		
Filed:	January 7, 2000	)	Confirmation No.	3344
For:	METHOD OF APPLYING ADHESIVE COATED FILM			

THIRD AMENDMENT AND RESPONSE UNDER 37 CFR § 1.116

Assistant Commissioner for Patents
Attn: BOX AF
Washington D.C. 20231

Dear Sir:

In response to the Final Office Action dated October 7, 2002, please amend the above-identified application as follows:

In the Claims

Please cancel claims 20-28, 41, 42, 45-56, and 62-66, all without prejudice.

Please amend claim 57. The amended claim is provided below in clean form. Per 37 C.F.R. §1.121, the amended claim is also shown in Appendix A with notations to indicate changes made (for convenience, all pending claims, including those added hereby, are provided in Appendix A).

Serial No.: 09/479,648

Filed: January 7, 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

57. (AMENDED) A method of applying an adhesive-coated film to a substrate, the method comprising:

providing a film comprising pressure-sensitive adhesive coated on a major surface of the film;

heating the film to the softening point of the film using a heat source; and

pressing the film against a substrate with a Heat Neutral Pressure Source, the Heat Neutral Pressure Source comprising a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F, wherein the adhesive on the major surface of the film adheres to the substrate.

Serial No.: 09/479,648

Filed: January 7, 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

REMARKS

Applicants received the Advisory Action dated 17 December 2002. Claims 20-28, 41, 42, 45-56, and 62-66 have been cancelled. Upon entry of this amendment, claims 29-31, 34-40, and 57-61 will be pending.

Although Applicants continue to respectfully disagree with the rejections presented in the Final Office Action of October 7, 2002, Applicants have canceled the rejected claims and made amendments to place the present application in condition for allowance and notice to that effect is respectfully requested. Applicants reserve the right to pursue the subject matter of the rejected claims and dispute the assertions made in support of the rejections of those claims in continuation applications.

Amended Claim 57

Applicants note that claim 64 was indicated as allowable in the Advisory Action and the Final Office Action. Claim 64 depended directly from independent claim 57. Applicants present herewith proposed amended claim 57 including the recitations of canceled claim 64.

As a result, Applicants respectfully submit that amended independent claim 57 and its dependent claims 58-61 are all in condition for allowance.

Serial No.: 09/479,648

Filed: January 7, 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM

CONCLUSION

It is respectfully submitted that claims 29-31, 34-40, and 57-61 as presented herein are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

CERTIFICATE UNDER 37 C.F.R. §1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Attn: BOX AF, Washington, D.C. 20231, on this 6th day of March, 2003, at 2:09 pm. (Central Time).

By: Rachel Gagliardi-Gebauer
Name: Rachel Gagliardi-Gebauer

Respectfully submitted,

STEELMAN et al.,

By their Representatives,

Mueting, Raasch & Gebhardt, P.A.
P.O. Box 581415
Minneapolis, MN 55458-1415
(612)305-1220

6 MARCH 2003
Date

By: KWR

Kevin W. Raasch
Reg. No. 35,651
Direct Dial (612)305-1218

**APPENDIX A - AMENDMENTS INCLUDING NOTATIONS TO INDICATE CHANGES
MADE
Serial No.: 09/479,648
Docket No.: 54655US009**

Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted. Additionally, all amendments to preexisting claims have been put in bold typeface.

In the Claims

For convenience, all pending claims are shown below.

29. A method of saving labor of adhering an adhesive-coated film to a substrate having a surface, comprising:
- (a) distributing a film to a party that has been taught to use the method of Claim 34;
 - (b) optionally permitting such party to print an image on the film; and
 - (c) permitting such party to use the method to adhere the film to a surface of the substrate.
30. A kit for application of films to a substrate, comprising:
- a) a Heat Neutral Pressure source, and
 - b) a heat source adapted for applying heat to an adhesive coated film during application to a substrate.
31. The kit of claim 30, further comprising a film having removable adhesive coated thereon.
34. A method of applying an adhesive-coated film to a substrate, the method comprising:
- providing a film comprising pressure sensitive adhesive coated on a major surface of the film;
 - heating the film to the softening point of the film; and
 - pressing the film against a substrate with a Heat Neutral Pressure Source after heating the film, wherein the pressure sensitive adhesive on the major surface of the film adheres to the substrate.

35. A method according to claim 34, wherein the heating comprises heating the film using hot air.

36. A method according to claim 34, wherein the heating comprises heating the film using infrared radiation.

37. A method according to claim 34, wherein the Heat Neutral Pressure Source comprises a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F.

38. A method according to claim 34, wherein the Heat Neutral Pressure Source comprises open cell foam material.

39. A method according to claim 34, wherein the Heat Neutral Pressure Source comprises a roller.

40. A method according to claim 34, wherein the substrate comprises a highly textured surface.

57. (AMENDED) A method of applying an adhesive-coated film to a substrate, the method comprising:

providing a film comprising pressure-sensitive adhesive coated on a major surface of the film;

heating the film to the softening point of the film using a heat source; and

pressing the film against a substrate with a Heat Neutral Pressure Source, the Heat Neutral Pressure Source comprising a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F, wherein the adhesive on the major surface of the film adheres to the substrate.

58. A method according to claim 57, wherein the heating comprises heating the film using hot air.

59. A method according to claim 57, wherein the heating comprises heating the film using infrared radiation.

60. A method according to claim 57, wherein the Heat Neutral Pressure Source comprises open cell foam material.

61. A method according to claim 57, wherein the substrate comprises a highly textured surface.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	STEELMAN et al.	)	Group Art Unit:	1733
)		
Serial No.:	09/479,648	)	Examiner:	J. J. Gallagher
Confirmation No.:	3344)		
)		
Filed:	January 7, 2000)		
)		
For:	<u>METHOD OF APPLYING ADHESIVE COATED FILM</u>			

PETITION FOR EXTENSION OF TIME

Assistant Commissioner for Patents
Attn: **BOX AF**
Washington, DC 20231

Sir:

In accordance with the provisions of 37 C.F.R. §1.136(a), it is respectfully requested that a one-month extension of time be granted in which to respond to the outstanding Office Action mailed 7 October 2002, thereby extending the date on which the period of response is set to expire from 7 January 2003 to 7 March 2003. A Petition for Extension of Time was filed on 6 February 2003 which authorized payment of \$110.00. This extension covers the time frame of 6 February 2003 to 7 March 2003.

Therefore, Applicants authorize charge to Deposit Account No. 13-4895 in the amount of \$300.00 to cover the required extension fee. Please charge any additional fees or credit any over-payment to PTO Deposit Account No.13-4895.

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Attn: **BOX AF**, Washington, D.C. 20231, on this 6th day of March, 2003, at 2:09 p.m. (Central Time).

Signature: Rachel Gaylini-Gebhardt
Name: Rachel Gaylini-Gebhardt

Respectfully submitted for
STEELMAN et al.
By
Mueting, Raasch & Gebhardt, P.A.
P.O. Box 581415
Minneapolis, MN 55458-1415
Phone: (612)305-1220
Facsimile: (612)305-1228

6 MARCH 2003
Date

By: KWR
Kevin W. Raasch
Reg. No. 35,651
Direct Dial (612)305-1218

APPENDIX XII.

Serial No.: 09/479,648

Docket No.: 54655US009

Nonfinal Office Action mailed from the U.S. Patent and Trademark Office on April 2,
2003.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/479,648	01/07/2000	RONALD S. STEELMAN	54655USA1B/009	3344

J2692 7590 04/02/2003

3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER

KNABLE, GEOFFREY L

OFFICE OF INTELLECTUAL
PROPERTY COUNSEL
3M INNOVATIVE PROPERTIES COMPANY

ART UNIT PAPER NUMBER

1733

DATE MAILED: 04/02/2003

APR 7 2003

6-2-03 Rep. 2mo
7-2-03 Rep. 3mo
10-2-03 Rep. 5mo
4-8-07
Dkt 2

Please find below and/or attached an ~~Office Communication concerning~~ ^{REFERENCE TO} this application or proceeding.

07/02/03
I JPC
FILED BY me

Office Action Summary

Application No.

09/479,648

Applicant(s)

STEELMAN ET AL

Examiner

Geoffrey L. Knable

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-31, 34-40 and 57-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-31, 34-40 and 57-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 1733

1. The indicated allowability of the claims and the finality of the last office action is WITHDRAWN in view of newly applied/discovered art/references, rejections based upon which follow.
2. The amendment filed 3-6-03 has been entered.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 37 and 57 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear how claim 37 differs from claim 57 as amended. Clarification is required – if they are identical in scope, one or the other should be canceled.

5. Claims 29-31, 34-37, 40, 57-59 and 61 are rejected under 35 U.S.C. 102(a/b/e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the admitted state of the prior art or Peacock et al. (US 5,800,919).

The admitted prior art (mainly described in the background part of the specification but also alluded to later in the detailed description) as well as Peacock et al. (note esp. col. 10, lines 42-50) evidence that it is known to provide a film including pressure sensitive adhesive on one surface as well as to heat this film (e.g. with a heat gun) to soften it and then press it against a substrate (e.g. one having rivets) using a tool such as a squeegee or rivet brush. As to the claim 34 requirement for a "Heat Neutral Pressure Source", as defined in the specification, this term is considered to require nothing more than that the pressure source not adhere to a softened film during

application¹. Although the reference and admitted prior art do not explicitly indicate whether the tool sticks to the softened film, it is considered implicit that the tool used (e.g. rivet brush or squeegee) would not stick to the softened film as if it did it would obviously not effectively function in the described methods, i.e. in appropriately pressing the film. In any event, even if it were not considered implicit, it certainly would have been obvious for the artisan to select and utilize a tool to press the softened film that does not also stick to the softened film during pressing for the obvious and readily apparent advantage of avoiding film damage as well as tool fouling during the application process – only the expected results would therefore be achieved. Such therefore anticipates or renders obvious what is required by claims 30, 31, 34, 35, 40, 58 and 61. The claim 29 method is further considered to be the implicit or certainly obvious method of performing the known process. As to the thermal conductivity defined in claims 37 and 57, it is submitted that the substantial air gaps present in a typical brush would be expected to provide a relatively low thermal conductivity sufficient to teach or render obvious values as claimed, the burden properly shifting to applicant to establish otherwise. As to claims 36 and 59, the admitted prior art indicates that the conventional application includes use of a heat source, usually as a hot air gun or a torch. It would seem that a torch would satisfy the claimed requirement for infrared radiation. In any event, infrared heating is extremely well known and obvious.

¹ Although there is mention in the specification of the pressure source not adhering to the film "when nearly melted", when read in light of the specification as a whole, this has been read as requiring no adherence to a "softened" film, it being noted that the specification indicates that heating to the softening point is heating "in accordance with the method of the present invention". Further, it should be noted that there is insufficient detail provided in the original disclosure to limit the state of the film to anything beyond simply heat softened.

Art Unit: 1733

6. Claims 37, 38 and 57-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted state of the prior art or Peacock et al. (US 5,800,919) as applied above, and further in view of Preisler (US 3,861,988) and/or Coe (US 754,403) and/or Sadtler (US 1,672,093).

The known process of pressing is effected with a tool such as a squeegee or rivet brush but an open cell foam as claimed is not suggested. It however is submitted that in pressing a film type material to an irregular or textured surface, it is well known and conventional to use a flexible sponge or foam pressing element in order to effect the necessary adaptation of the film to the irregular substrate surface - Preisler (note esp. "16" and col. 2, lines 55-59), Coe (note esp. page 1, lines 8-25) and Sadtler (note esp. "7" and page 2, lines 87-92) are exemplary. To alternatively utilize a sponge or foam type pressing device as the tool to press the film to the surface would thus have been obvious and lead to only the expected results. Further, it is considered that the ordinary artisan would have certainly recognized that the film should not stick to the pressing means during application and would have selected the pressing elements accordingly, it not being beyond the skill of the ordinary artisan to select materials that have well known low adhesion properties (i.e. suitable material properties (i.e. flexible sponge/foam type materials) have been extremely well characterized and it is submitted that the ordinary artisan would be expected to be well aware of material properties including adhesion characteristics and would have been able to select accordingly). The claims directed to the requirement for a low thermal conductivity for the pressing means have also been included within this grounds of rejection as it is considered that

Art Unit: 1733

foam or sponge type pressing means, which as noted, are considered to have been obvious alternatives in the prior art process, would be expected to exhibit low thermal conductivity characteristics.

7. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted state of the prior art or Peacock et al. (US 5,800,919) as applied above, and further in view of Moore (US 1,895,045) and/or Finke (US 4,261,783).

In the admitted prior art process, the pressing is apparently not effected with a roller. It however is taken by the examiner to be *extremely* well known per se to use rollers to apply pressure to effect bonding to a surface. Further, it is also known and conventional, when desiring to effect adherence to a textured or irregular surface, to apply the pressure using a roller that includes a flexible or conformable surface – Moore (note esp. "8") and Finke (note esp. roller "201") are exemplary. It therefore is submitted that it would have been prima facie obvious to effect the desired or necessary adherence of a film to a substrate using a roller for only the expected results. Further, it is again noted that it is considered that the ordinary artisan would have certainly recognized that the film should not stick to the pressing means during application and would have selected the pressing elements accordingly, it not being beyond the skill of the ordinary artisan to select materials (e.g. silicone based or Teflon coated) that have *well known* low adhesion properties.

8. Claim 30 is rejected under 35 U.S.C. 102(b) as being anticipated by Alfter et al. (US 3,962,016) or Boyd et al. (US 4,511,425) or Werstlein (US 3,853,669).

Alfter et al. discloses a device for application of films to a surface including a pressure roller "6" coated with Teflon as well as a heat source "7". Such is considered to be clearly capable of applying heat to a film as claimed and further the Teflon coated pressure roller would be expected to avoid adherence. The reference to a "kit" is considered to require that the elements have a degree of association such that they are intended to be used together, this thus not considered to define or require any additional structure beyond that shown in the reference.

Boyd et al.² discloses a device for application of films to a surface including a resilient pressure pad (60) formed of a silicone elastomer adapted to release a softened film as well as various heat sources both within the pad as well as at e.g. "45". Such is considered to be clearly capable of applying heat to a film as claimed and further the pressure pad is designed to release the heated film upon application to a substrate. The reference to a "kit" is considered to require that the elements have a degree of association such that they are intended to be used together, this thus not considered to define or require any additional structure beyond that shown in the reference.

Werstlein also discloses a device for pressing plastic material including heating means and a pressure roller that applies a softened film to the substrate, it being considered that the reference suggestion of a smooth seam would have been understood by the artisan as an indication that the film is not sticking to the roller. In

² It is noted for the record that since this reference is apparently directed to applying a label to a substrate that is apparently only adhesive when in the heated state, it has been considered that this reference is *not* suggesting application of a label having a *pressure sensitive adhesive* as defined or required in the other claims of record. This reference has therefore not been applied against the other claims in light of this distinction.

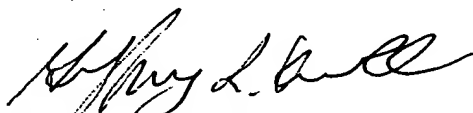
Art Unit: 1733

any event, it should also be noted that claim 30 requires no particular film, it being considered that sticking depends in part on the type of film applied, it being considered that almost any pressure source can read on the claimed "heat neutral pressure source" as there is almost necessarily some types of films for which the pressure source would have the *capability* of not sticking to.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey L. Knable whose telephone number is 703-308-2062. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W. Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.


Geoffrey L. Knable
Primary Examiner
Art Unit 1733

G. Knable
March 31, 2003

APPENDIX XIII.

Serial No.: 09/479,648

Docket No.: 54655US009

Amendment and Response filed July 2, 2003.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Ronald S. STEELMAN et al.)	Group Art Unit:	1733
)		
Serial No.:	09/479,648)	Examiner:	Geoffrey L. Knable
Confirmation No.:	3344)		
)		
Filed:	7 January 2000)		
)		
For:	METHOD OF APPLYING ADHESIVE COATED FILM		

AMENDMENT AND RESPONSE

Assistant Commissioner for Patents
Washington D.C. 20231

Dear Sir:

In response to the Office Action mailed 2 April 2003, please amend the above-identified application as follows:

In the Claims

Please cancel claim 37.

Remarks

The Office Action mailed 2 April 2003 has been received and reviewed. Claim 37 having been canceled, the pending claims are claims 29-31, 34-36, 38-40, and 57-61.

Reconsideration and withdrawal of the rejections in view of the cancellation of claim 37 and the following comments are respectfully requested.

The 35 U.S.C. §112, Second Paragraph, Rejection

The Examiner rejected claims 37 and 57 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner alleges that it is not clear how claim 37 differs from claim 57 as amended.

Applicants submit that the cancellation of claim 37 overcomes the Examiner's rejection. Reconsideration and withdrawal of the rejection is respectfully requested.

The 35 U.S.C. §102/103 Rejection

The Examiner rejected claims 29-31, 34-37, 40, 57-59 and 61 under 35 U.S.C. §102(a/b/e) as being anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over the admitted state of the prior art or Peacock et al. (U.S. Patent No. 5,800,919). Applicants respectfully traverse this rejection. Additionally, Applicants submit that the cancellation of claim 37 renders the rejection as to this claim moot.

To anticipate a claim under 35 U.S.C. §102(a), (b), or (e), the reference must teach each and every element of the claim (M.P.E.P. §2131). Applicants respectfully assert that both the admitted state of the prior art and Peacock et al. fail to teach a Heat Neutral Pressure Source, as recited in independent claims 30, 34, and 57, and the claims dependent thereto.

Peacock et al. is directed to pressure-sensitive adhesives that incorporate small amounts of a plasticizer (Peacock et al., Abstract). The adhesive allows a graphic marking film to be applied at low temperatures (20°F (-7°C)), and resists tenting around compound curved

surfaces of rivet heads and corrugations typical of truck trailer sides (Peacock et al., Abstract). Peacock et al. disclose a test procedure wherein film is applied to a test panel including rivet heads, the film is heated, and deformed around the rivet head using a rivet brush (Peacock et al., column 10, lines 42-47). There is, however, no teaching in Peacock et al. that the composition of the film-contacting portion of the rivet brush does not appreciably conduct heat either to or from the surface of the film as the film is applied under pressure to a surface on a substrate, preferably having a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F, which is one of the characteristics of a Heat Neutral Pressure Source of the present invention (specification, page 5, lines 22-28).

The Examiner indicated in the present Office Action at page 3, lines 12-16 that substantial air gaps in a typical brush would teach or render obvious the conductivity recited in claim 57, and the burden to prove otherwise is shifted to the Applicants. Applicants respectfully disagree.

First, Applicants point out that thermal conductivity of the rivet brush is not taught in Peacock et al. Second, Applicants assert that the thermal conductivity of a Heat Neutral Pressure Source of claim 57 is not inherent in the rivet brush of Peacock et al. To rely on a theory of inherency, the Examiner "must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original) (M.P.E.P. §2112). There is no teaching in Peacock that the composition of the film-contacting portion of the rivet brush has the thermal conductivity as recited in claim 57, nor has the Examiner provided any fact or technical reasoning supporting the assertion that the composition of the film-contacting portion of the rivet brush inherently has the thermal conductivity recited in claim 57. Finally, there is no teaching or suggestion, either in Peacock et al. or in the art generally, to modify the teachings of Peacock et al. to provide Applicants' Heat Neutral Pressure Source.

The Examiner also indicated in the present Office Action at page 3, lines 1-11 that claims 30-31, 34, 35, 40, 58, and 61 are anticipated or rendered obvious as it is implicit in Peacock et al. and the prior art that the tool used would not stick to the softened film. Applicants respectfully point out that a tool that does not stick to a softened film is not explicitly recited any of claims 30-31, 34, 35, 40, 58, and 61, and, furthermore, that the characteristic of not sticking to a softened film is not the exclusive characteristic of the Heat Neutral Pressure Source of claims 30-31, 34, 35, 40, 58, and 61.

Applicants additionally assert that Peacock et al. fail to teach a kit, as recited in Applicants' claim 30.

Applicants respectfully submit that neither the admitted prior art nor Peacock et al. teach every element of Applicants' claims. Reconsideration and withdrawal of the rejection are respectfully requested.

The 35 U.S.C. §102(b) Rejection

The Examiner rejected claim 30 under 35 U.S.C. §102(b) as being anticipated by Alfter et al. (U.S. Patent No. 3,962,016) or Boyd et al. (U.S. Patent No. 4,511,425) or Werstlein (U.S. Patent No. 3,853,669). Applicants respectfully traverse this rejection.

Applicants respectfully submit that neither Alfter et al., Boyd et al., nor Werstlein et al. teach a kit including a Heat Neutral Pressure Source as recited in claim 30.

Alfter et al. teach a process for joining abutting thermoplastic synthetic resin foam sheets or panels including heating a metal strip, pressing the metal strip onto the junction zone, where a heat transfer to the foam material is effected, thereby firmly attaching the metal strip to the junction zone (Alfter et al., column 1, lines 30-42). The film-contacting portion of a Heat Neutral Pressure Source of the present invention does not appreciably conduct heat either to or from the surface of the film (specification, page 5, lines 23-24).

Boyd et al. teach an apparatus for heat transfer labeling of articles wherein decorative laminates affixed to a web are heated by means of a heated platen, a resilient pad (60)

is pressed against the laminate, whereby the laminate adheres to the pad, and the pad is then pressed against the article to be labeled, to which the laminate adheres in preference to the pad (Boyd et al., Abstract). Applicants respectfully submit that the pad (60) is not a Heat Neutral Pressure Source of the present invention. The resilient pad is heated to an elevated temperature to maintain the label material in a softened, tackified condition (Boyd et al., column 7, lines 34-36). As indicated by the Examiner in the Office Action at page 6, lines 10-11, such configuration is clearly capable of applying heat to a film. However, the Heat Neutral Pressure Source of the present invention does not appreciably conduct heat either to or from the surface of the film. Thus, Boyd et al. fail to teach a Heat Neutral Pressure Source of the present invention.

Werstlein et al. teach a welding tip for a plastic welding gun including a pressure roller for applying softened plastic into the weld seam. Applicants submit that the welding tip of Werstlein fails to teach the Heat Neutral Pressure Source of the present invention that does not appreciably conduct heat either to or from the surface of the film, since “[f]orming an important part of the invention, the present tool [of Werstlein] is made entirely from heat absorbing material” (Werstlein, column 2, lines 54-55; emphasis added). Applicants assert that Werstlein does not disclose a Heat Neutral Pressure Source of the present invention.

In view of the above comments, reconsideration and withdrawal of the rejection are respectfully requested.

The 35 U.S.C. §103 Rejection

The Examiner rejected claims 37, 38 and 57-61 under 35 U.S.C. §103(a) as being unpatentable over the admitted state of the prior art or Peacock et al. (U.S. Patent No. 5,800,919) as applied above, and further in view of Preisler (U.S. Patent No. 3,861,988) and/or Coe (U.S. Patent No. 754,403) and/or Sadtler (U.S. Patent No. 1,672,093). Applicants respectfully traverse this rejection. Applicants respectfully submit that cancellation of claim 37 renders the rejection as to this claim moot. Furthermore, Applicants assert that the comments below additionally apply to independent claim 34 and claims 35, 36, and 40 dependent thereto.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation in the references themselves or the knowledge generally available to one skilled in the art to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the references must teach or suggest all the claim limitations (M.P.E.P. §2143).

As indicated above, Applicants assert that neither the prior art nor Peacock et al. teach Applicants claims including a Heat Neutral Pressure Source. Furthermore, neither Preisler, Coe, nor Sadtler provide that which is missing from either Peacock et al. or the prior art.

Preisler teaches a pressure sensitive rolled sheeting applicator and dispenser for applying pressure sensitive sheet material such as paper, plastic, and metal foil that automatically removes the back cover strip and smooths down pressure sensitive adhesive sheeting on a flat surface, and in such a way that paper will adhere to small wall depressions (Preisler, column 1, lines 4-44). There is no teaching or suggestion that heat is applied to the pressure sensitive sheet material. Applicants assert, therefore, there is no motivation to combine the teachings of Preisler with Peacock et al. or the prior art generally wherein the film is heated to soften the film (Peacock et al., column 10, lines 43-44). Nor is there any suggestion that such combination would provide a reasonable expectation of success. Furthermore, Preisler fails to teach or suggest a Heat Neutral Pressure Source of Applicants invention, thus failing to add that which is missing from both Peacock et al. and the prior art.

Coe teaches a Guilder's tool whereby metallic leaf is deposited on uneven surfaces by means of a sponge-rubber pressure pad (Coe, lines 8-25). Coe fails to teach or suggest an adhesive coated film. Furthermore, as in Preisler, there is no teaching or suggestion in Coe of applying heat to the leaf to be applied. In fact, as heat would be detrimental to fragile decorative metallic leaf, Applicants respectfully submit that Coe teaches away from application of heat. It is improper to combine references where the references teach away from their combination (M.P.E.P. §2145). Applicants therefore assert that, as in Preisler, there is no motivation to combine the teachings of Coe with Peacock et al. or the prior art generally wherein

the film is heated to soften the film, such combination provides no reasonable expectation of success, and Coe fails to teach or suggest the Heat Neutral Pressure Source, which is missing from both Peacock et al. and the prior art.

Sadtler teaches a method by which a surface is decorated using very thin bond paper or onion skin paper having applied thereto the decoration (Sadtler, page 2, lines 38-45). The paper is wetted by applying wet paste or fluid glue between the paper and the surface to which it is to be adhered and pressing the paper with a pad so as to force the paper into continuous contact with the surface to be decorated (Sadtler, page 2, line 62 to page 3, line 45). Sadtler also fails to teach or suggest an adhesive coated film and fails to teach or suggest the application of heat. Therefore, by the same reasoning as Preisler and Coe, there is no motivation to combine the teachings of Sadtler with those of Peacock et al. or the prior art, there is no reasonable success expected with such combination, and Sadtler fails to teach or suggest that which is missing from Peacock et al. and the prior art.

Reconsideration and withdrawal of the rejection are, therefore, respectfully requested.

The Examiner rejected claim 39 under 35 U.S.C. §103(a) as being unpatentable over the admitted state of the prior art or Peacock et al. (U.S. Patent No. 5,800,919) as applied above, and further in view of Moore (U.S. Patent No. 1,895,045) and/or Finke (U.S. Patent No. 4,261,783). Applicants respectfully traverse this rejection.

Moore is directed to the application of paint or other marking compound on floors, streets, and highways wherein the painted surface is covered with paper to protect the wet paint from damage until it is dried (Moore, page 1, lines 29-40; page 2, lines 18-19; and page 3, lines 63-70). Applicants respectfully submit that there is no motivation to combine Moore with Peacock et al. or the prior art, as Moore is drawn to nonanalogous art. Furthermore, as there is no teaching or suggestion of a Heat Neutral Pressure Source of Applicants' invention, Moore fails to provide that which is missing from Peacock et al., and the prior art.

Finke teaches a label printing and applying apparatus including means for printing successive pressure sensitive, relatively stiff adhesive labels, delaminated the labels from a supporting web, and applying the printed delaminated labels to merchandise (Finke, Abstract and column 3, line 13). Finke fails to teach or suggest a method of applying an adhesive-coated film, fails to teach or suggest heating the film to the softening point, and fails to teach or suggest Applicants' Heat Neutral Pressure Source. It is asserted, therefore, that there is no motivation to combine Finke with either the prior art or Peacock et al. in which softening of the film around a rivet head is taught (Peacock et al., column 10, lines 43-44), nor that such a combination would provide a reasonable expectation of success. Furthermore, as Finke fails to teach or suggest Applicants' Heat Neutral Pressure Source, Finke also fails to add that which is missing from Peacock et al. and the prior art.

Reconsideration and withdrawal of the rejections are respectfully requested.

Summary

It is respectfully submitted that the pending claims 29-31, 34-36, 38-40, and 57-61 are in condition for allowance and notification to that effect is respectfully requested.

Amendment and Response

Serial No.: 09/479,648

Confirmation No.: 3344

Filed: 7 January 2000

For: METHOD OF APPLYING ADHESIVE COATED FILM


Page 9 of 9

The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
Ronald S. STEELMAN et al.

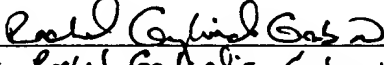
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02 JULY 2003
Date

By: 
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Direct Dial (612)305-1218

CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Washington, D.C. 20231, on this 2nd day of July, 2003, at 10:56 a.m. (Central Time).

By: 
Name: Rachel Gaylord Gebhardt

APPENDIX XIV.

Serial No.: 09/479,648

Docket No.: 54655US009

Final Office Action mailed from the U.S. Patent and Trademark Office on September 23,
2003.



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/479,648	01/07/2000	RONALD S. STEELMAN	54655USATB/009	3344

32692 7590 09/23/2003

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SEP 26 2003

EXAMINER
KNABLE, GEOFFREY L

ART UNIT PAPER NUMBER

1733

DATE MAILED: 09/23/2003

DUE DATE(S)

ATTORNEY
DOCKETED

REFERRED TO

11-23-03 FR 2mo
12-23-03 FR 3mo
3-23-04 FR 6mo

Please find below and/or attached an Office communication concerning this application or proceeding.

A 524

Office Action Summary

Application No.

09/479,648

Applicant(s)

STEELMAN ET AL

Examiner

Geoffrey L. Knable

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-31,34-36,38-40 and 57-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-31,34-36,38-40 and 57-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 29-31, 34-36, 38-40 and 57-61 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The original disclosure provided a clear, deliberate and unambiguous special definition for "Heat Neutral Pressure Source" – namely the paragraph at page 5, lines 17-21 which clearly indicates that "For purposes of this invention, a "Heat Neutral Pressure Source" is a ...," this being the definition that was given to this phrase in interpreting the claims. In the latest response, however, the arguments center on features described in the specification in subsequent paragraphs of the specification (particularly page 5, lines 22+). These features however were not clearly described as part of the clear, precise definition of the "Heat Neutral Pressure Source" in the original disclosure and thus are not considered to further limit the claims. However, since there seems to now be some contradiction between what was considered a clear original definition for the "Heat Neutral Pressure Source" and what is now urged to be the definition, a new ambiguity is presented by applicant's response. In other words, it now is not clear what the scope of the "Heat Neutral Pressure Source" is. If page 5, lines 22+ are to be read into the claims as limitations, how is one to determine what else is to be read into the claims? Again, the claims must be read consistent with the deliberate and precise definition given to the claim phrase and not additional (and imprecise) other parts of the specification. Note also that if one reads the part of the specification urged

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by applicant into the claims, namely the reference to "not appreciably conduct heat..." the claims would then also be indefinite for the reason that the scope of protection afforded by "not appreciably conduct heat" is not clear and definite. In other words, the scope of protection afforded by the requirement for "not appreciably conduct heat" cannot be readily ascertained as one does not know what is and is not "appreciable" conduction.

In summary, the claimed use of the term "Heat Neutral Pressure Source," prior to the latest response, was considered to be adequately clear and definite when read in light of the clear, deliberate and precise definition presented at page 5, lines 17-21 of the specification. The latest response, in urging that additional features are to read into the claims (these additional features themselves also being indefinite), now presents significant potential confusion in determining what is meant by "Heat Neutral Pressure Source".

3. Claims 29-31, 34-36, 40, 57-59 and 61 are rejected under 35 U.S.C. 102(a/b/e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the admitted state of the prior art or Peacock et al. (US 5,800,919) as applied in the last office action.

4. Claims 38 and 57-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted state of the prior art or Peacock et al. (US 5,800,919) as applied above, and further in view of Preisler (US 3,861,988) and/or Coe (US 754,403) and/or Sadtler (US 1,672,093) as applied in the last office action.

5. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted state of the prior art or Peacock et al. (US 5,800,919) as applied above, and further in view of Moore (US 1,895,045) and/or Finke (US 4,261,783) as applied in the last office action.

6. Claim 30 is rejected under 35 U.S.C. 102(b) as being anticipated by Alfter et al. (US 3,962,016) or Boyd et al. (US 4,511,425) or Werstein (US 3,853,669) as applied in the last office action.

7. Applicant's arguments filed July 2, 2003 have been fully considered but they are not persuasive.

Applicant first urges that there is no teaching that the rivet brush "does not appreciably conduct heat either to or from the surface of the film as the film is applied under pressure to a surface on a substrate, preferably having a Thermal Conductivity of less than 1.8 BTU/hr-in-ft²-°F, which is one of the characteristics of a Heat Neutral Pressure Source of the present invention." This argument has been carefully considered but again, the claimed requirement for a "Heat Neutral Pressure Source", read in light of the specification, has been interpreted to require in essence that the pressure source not adhere to a softened film during application¹. Importantly, note that the original disclosure (page 5) defines the Heat Neutral Pressure source as being "a pressure source that has thermal conductivity characteristics and surface characteristics

¹ Note also again as set forth in the last office action that although there is mention in the specification of the pressure source not adhering to the film "when nearly melted", when read in light of the specification as a whole, this has been read as requiring no adherence to a "softened" film, it being noted that the specification indicates that heating to the softening point is heating "in accordance with the method of the present invention". Further, it should be noted that there is insufficient detail provided in the original disclosure to limit the state of the film to anything beyond simply heat softened.

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at the point of contact of the film such that the film, when nearly melted, will not adhere to the Heat Neutral Pressure Source during application in accordance with the method of the present invention to a surface.” There is no clear indication in the original disclosure that other parts of the specification are to be read into the claims as well. Further, it is again submitted to be entirely reasonable to consider that a rivet brush or squeegee that suitably and effectively can press a softened film (and thus presumably does not stick thereto) can be said to be entirely consistent with this definition. Again, as noted in the last office action, although the reference and admitted prior art do not explicitly indicate whether the tool sticks to the softened film, it is considered implicit that the tool used (e.g. rivet brush or squeegee) would not stick to the softened film as if it did it would obviously not effectively function in the described methods, i.e. in appropriately pressing the film. In any event, even if it were not considered implicit, it certainly would have been obvious for the artisan to select and utilize a tool to press the softened film that does not also stick to the softened film during pressing for the obvious and readily apparent advantage of avoiding film damage as well as tool fouling during the application process – only the expected results would therefore be achieved.

With respect to the specific conductivity characteristics, and particularly the specific numerical ranges thereof, it is not considered that the broad requirement for a Heat Neutral Pressure Source alone defines specific features of the thermal conductivity beyond simply that it cooperate in helping to avoid sticking to the softened film. This however is considered to again be an implicit or in any event certainly obvious feature of

the prior art or known application devices and applicant has provided no conclusive showing or convincing argument to the contrary.

With respect to claim 57 (dependent claim 37 previously also setting forth this requirement having been cancelled) setting an upper limit on the thermal conductivity, the examiner took the position that the air gaps (between bristles) present in a typical rivet brush would be expected to provide a relatively low thermal conductivity sufficient to teach or render obvious values as claimed, the burden properly shifting to applicant to establish otherwise. Responsive thereto, applicant has argued that the thermal conductivity is not taught and "Applicants assert that the thermal conductivity of a Heat Neutral Pressure Source of claim 57 is not inherent in the rivet brush of Peacock et al." First, it should be stressed that the rejection is over either the admitted prior art or Peacock et al., not just Peacock et al. In any event, it is assumed that applicant is urging that such would not be satisfied for either the admitted prior art or the reference tools. It is further urged that the examiner has not provided any fact or technical reasoning supporting the assertion that the brush has the thermal conductivity recited in claim 57. This is not agreed with and in fact these arguments raise some question as to whether applicant is stating for the record that a prior art "rivet brush" does not fall under the claimed upper limit on conductivity (it being assumed that assignee possesses and perhaps even sells these brushes and thus presumably could be making this assertion) or whether it is simply being urged that the examiner has no reasoning supporting the rejection. It would seem from the clear statement that "Applicants assert that the thermal conductivity of a Heat Neutral Pressure Source of claim 57 is not inherent in the

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rivet brush of Peacock et al.” that it is being stated for the record that such prior art rivet brushes do not fall under the claimed upper limit. The further argument that the examiner has presented no reasoning etc. however casts some doubt on applicant’s position in this regard. Clarification is required. Further, it is again submitted that although the prior art rivet brushes were not characterized in terms of conductivity, the examiner has provided sufficient technical reasoning to support an expectation that the claimed conductivity would be satisfied or obvious – note again that a brush is clearly and necessarily inclusive of significant air gaps between bristles, such substantial air gaps being expected to provide a relatively low thermal conductivity sufficient to teach or render obvious values as claimed. In other words, as is well known to the ordinary artisan, entrapped air is considered to be a very effective insulator and would be expected to significantly reduce the thermal conductivity of a brush and applicant has not conclusively or clearly established to the contrary (assuming it is not being urged for the record that such prior art rivet brushes actually have a higher thermal conductivity).

It is also argued that a tool that does not stick to a softened film is not explicitly recited in any of the claims. Again, however, the examiner has given what is believed to be the most reasonable interpretation to the claims consistent with the original disclosure at page 5, lines 17-21 such that the claimed requirement for a “Heat Neutral Pressure Source” has been read as explicitly requiring this. Applicant’s argument in this regard is therefore unconvincing. It is then urged that not sticking to a softened film is “not the exclusive characteristic of the Heat Neutral Pressure Source” of the claims. From this argument, applicant seems to be acknowledging that the non-sticking is a

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requirement of the claims but that other features are required. Again, however a reading of the claims in light of the specification (page 5, lines 17-21) is not considered to require significant features beyond what is shown or obvious from the prior art tools. In other words, although the specification alludes to the "conductivity characteristics" and "surface characteristics", this is only in the context of being such that the tool does not stick to the softened film. Since it was considered to have been implicit or certainly obvious that the prior art tools would not stick to a softened film, it is considered reasonable to conclude that they possess "surface characteristics" and "conductivity characteristics" sufficient to allow this. Applicants' argument is therefore unconvincing. Applicant is arguing features of the claims that were not considered to be part of the clear, precise original definition in the specification for "Heat Neutral Pressure Source", such arguments therefore not being considered commensurate in scope with the claims.

It is also argued that Peacock et al. does not teach a kit. It however is submitted that the reference to a "kit" is considered to simply require that the elements have a degree of association such that they are intended to be used together, this thus not considered to define or require any additional structure beyond that shown or rendered obvious by the admitted prior art or Peacock et al. disclosure.

With respect to the 35 USC 102(b) rejections of claim 30, applicant urges in each instance that the references do not suggest a Heat Neutral Pressure Source as this requires that it "not appreciably conduct heat". As noted above, such is not considered to form part of the definition of the Heat Neutral Pressure Source as such is not defined in the specification in a precise definite manner as being intended to also limit the

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meaning of the phrase. In other words, the original definition is considered to be restricted to page 5, lines 17-21. If other parts of the specification are to also be read into the claims, how is one to determine what other parts?

With respect to the 35 USC 103 rejection, it is urged that Preisler fails to suggest using heat and thus motivation to make the combination as well as a reasonable expectation of success is lacking. Likewise, with respect to Coe and Sadtler, it is urged that pressure sensitive films and heat are not taught and thus there would be no motivation or reasonable expectation of success. These arguments have been carefully considered but it is still considered that taken as a whole the secondary references evidence and establish that in the art of pressing a film type material (including pressure sensitive films as in Preisler) to an irregular or textured surface, it is a well known and conventional expedient to use a flexible sponge or foam pressing element in order to effect the necessary adaptation of the film to the irregular substrate surface. Further, it is submitted that these teachings would have been understood by the artisan as instructive and applicable regardless of the preliminary processing (e.g. heat) required to allow the film to conform. In other words, it is submitted once the ordinary artisan is taught that foam/sponge pressing means are suitable and effective to press films to irregular surfaces, they would have found it obvious to utilize a foam/sponge type pressing means anywhere a film is to be pressed to an irregular substrate. Again, the preliminary film processing necessary to allow any particular film material to conform does not fundamentally alter the basic teachings/evidence of these secondary references with respect to the known use of foam/sponge pressing means as suitable

Art Unit: 1733

and effective means to press films to irregular surfaces. There is no fundamental incompatibility between pressing an unheated film and a heated one – again, while sticking might be a concern, such is considered to be entirely expected and it is not beyond the skill level of the artisan to assure that materials are used that are low adhesion, such being extremely well known and characterized in the material arts.

As to the rejection of claim 39, it is argued that the Moore is non-analogous and Finke fails to suggest an adhesive coated film, etc. These arguments have been considered but first, it should be noted that the rejection was at first predicated on what was considered to be the *extremely* well known expedient per se of using rollers to apply pressure to effect bonding to a surface (e.g. wall paper rolling; rolling vinyl floors, etc.). The secondary reference were added to establish that it further is also known and conventional, when desiring to effect adherence to a textured or irregular surface, to apply the pressure using a roller that includes a flexible or conformable surface – Moore (note esp. “8”) and Finke (note esp. roller “201”) being exemplary. Additionally, it should be stressed that the prior art included not only discrete tools such as the rivet brush but also tools (e.g. squeegee) for more continuous or elongated irregularities such as ribs. Use of rollers would have been particularly obvious for such elongated irregularities.

8. Applicant's response necessitated the new ground of rejection (under 35 U.S.C. 112) presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

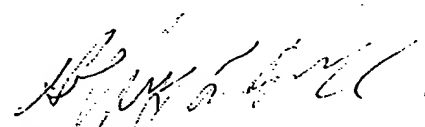
Art Unit: 1733

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey L. Knable whose telephone number is 703-308-2062. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W. Ball can be reached on 703-308-2058. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Geoffrey L. Knable
Primary Examiner
Art Unit 1733

G. Knable
September 20, 2003

APPENDIX XV.

Serial No.: 09/479,648

Docket No.: 54655US009

Notice of Appeal to the Board of Patent Appeals and Interferences filed January 23, 2004.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Ronald S. STEELMAN et al.	)	Group Art Unit:	1733
)		
Serial No.:	09/479,648	)	Examiner:	Geoffrey L. Knable
Confirmation No.:	3344)		
)		
Filed:	7 January 2000)		
)		
For:	<u>METHOD OF APPLYING ADHESIVE COATED FILM</u>			

NOTICE OF APPEAL
TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Commissioner for Patents
Mail Stop AF
P.O. Box 1450
Alexandria, VA 22313-1450
Sir:

Applicants hereby appeal to the Board of Appeals from the decision dated 23 September, of the Primary Examiner rejecting claims 29-31, 34-36, 38-40, and 57-61 of the above-identified application under 37 C.F.R. §§1.113 and 1.191. Please charge Deposit Account No. 13-4895 in the amount of \$330.00 to cover the Notice of Appeal fee.

A one-month extension of time to respond to the final rejection is enclosed herewith. Please charge Deposit Account No. 13-4895 in the amount of \$110.00 to cover the required fee. Please charge any additional fees or credit any over-payment to PTO Deposit Account No. 13-4895.

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Commissioner for Patents, Mail Stop AF, P.O. Box 1450, Alexandria, VA 22313-1450, on this 23rd day of January, 2004, at 9:25 a.m. (Central Time).

Signature: Rachel Bagliardi-Gebhardt
Name: Rachel Bagliardi-Gebhardt

Respectfully submitted for

Ronald S. STEELMAN et al.

By
Mueeting, Raasch & Gebhardt, P.A.
P.O. Box 581415
Minneapolis, MN 55458-1415
Phone: (612)305-1220
Facsimile: (612)305-1228

23 JANUARY 2004
Date

By: KW Raasch
Kevin W. Raasch
Reg. No. 35,651
Direct Dial (612)305-1218

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Ronald S. STEELMAN et al.) Group Art Unit: 1733
Serial No.: 09/479,648)
Confirmation No.: 3344)
Filed: 7 January 2000)
For: METHOD OF APPLYING ADHESIVE COATED FILM

PETITION FOR EXTENSION OF TIME

Commissioner for Patents
Mail Stop AF
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. §1.136(a), it is respectfully requested that a one-month extension of time be granted in which to respond to the outstanding Office Action mailed 23 September 2003, thereby extending the date on which the period of response is set to expire from 23 December 2003 to 23 January 2004.

Please charge Deposit Account No. 13-4895 in the amount of \$110.00 to cover the required extension fee. Please charge any additional fees or credit any over-payment to PTO Deposit Account No. 13-4895.

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Commissioner for Patents, Mail Stop AF, P.O. Box 1450, Alexandria, VA 22313-1450, on this 23rd day of January, 2004, at 9:25 a.m. (Central Time).

Signature: Rachel Baglini-Gebhardt
Name: Rachel Baglini-Gebhardt

Respectfully submitted for

Ronald S. STEELMAN et al.

By
Mueting, Raasch & Gebhardt, P.A.
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23 JANUARY 2004
Date

By: KW Raasch
Kevin W. Raasch
Reg. No. 35,651
Direct Dial (612)305-1218

APPENDIX XVI.

Serial No.: 09/479,648

Docket No.: 54655US009

1. Peacock et al. (U.S. Patent No. 5,800,919).
2. Preisler (U.S. Patent No. 3,861,988).
3. Coe (U.S. Patent No. 754,403).
4. Sadtler (U.S. Patent No. 1,672,093).
5. Moore (U.S. Patent No. 1,895,045).
6. Finke (U.S. Patent No. 4,261,783).
7. Alfter et al. (U.S. Patent No. 3,962,016).
8. Boyd et al. (U.S. Patent No. 4,511,425).
9. Werstlein (U.S. Patent No. 3,853,669).

In re Cohn
(CCPA)
169 USPQ 95
Decided Mar. 18, 1971
No. 8357
U.S. Court of Customs and Patent Appeals

Headnotes

PATENTS

1. Claims - Indefinite - In general (§ 20.551)

Claim language which expresses performing particular steps until a given result or state is reached, or a given condition obtained, may be proper under third paragraph of 35 U.S.C. 112, but claims also must satisfy requirements of first and second paragraphs of section 112.

2. Claims - Indefinite - In general (§ 20.551)

Construction of specification and claims - By specification and drawings - In general (§ 22.251)

No claim may be read apart from and independent of supporting disclosure on which it is based; court must read claims in light of disclosure and in that light the term "opaque finish" as it appears in preamble of each claim must take on meaning ascribed to it in that disclosure; result is an inexplicable inconsistency within each claim requiring that rejection under 35 U.S.C. 112 on grounds of indefiniteness be sustained.

Particular patents-Opaque Surfaces

Cohn, Methods of Producing Opaque Surfaces on Aluminum, claims 12 to 14 of application refused.

Case History and Disposition:

Appeal from Board of Appeals of the Patent Office.

Application for patent of Charles C. Cohn, Serial No. 281,049, filed May 16, 1963; Patent Office Group 110. From decision rejecting claims 12 to 14, applicant appeals. Affirmed.

Attorneys:

Busser, Smith & Harding (George A. Smith of counsel) both of Philadelphia, Pa., for appellant.

S. Wm. Cochran (Leroy B. Randall and Raymond E. Martin of counsel) for Commissioner of Patents.

Judge:

Before Rich, Almond, Baldwin, and Lane, Associate Judges, and Re, Judge, United States Customs Court, sitting by designation.

Opinion Text**Opinion By:**

Baldwin, Judge.

This appeal is from the decision of the Patent Office Board of Appeals affirming the rejections of appellant's claim 12 ¹ under 35 U.S.C. 103 as obvious in view of prior art and of claims 12-14 as failing to comply with 35 U.S.C. 112, second paragraph.

The Invention

The claims before us are directed to a method of producing non-metallic appearing finishes on aluminum surfaces. The specification details specific methods whereby various finishes may be obtained, "categorized according to their appearance as being frosted, opaque or glazed." In general, the methods comprise the three steps of forming an aluminum oxide layer on a pre-cleaned aluminum surface (anodizing), sealing that oxide layer with a selected sealant, and corroding the sealed surface under controlled conditions in order to produce a non-metallic appearing surface. The particular finish resulting-frosted, opaque, or glazed, porcelain-like-is a function of the particular sealant employed and, in the case of the "frosted" finish, the addition of an etching step subsequent to the cleaning of the surface. Claim 12 is illustrative of the particular method claimed:

12. The method of producing on a surface of aluminum a durable opaque finish comprising the steps of providing on the surface of the aluminum a porous oxide coating, then sealing said coating by treatment with a solution of an alkali silicate, and then treating the sealed surface with a corroding solution until the metallic appearance of the surface is supplanted by an opaque appearance.

Claim 13 is similar with caustic alkali specified as the corroding solution, while claim 14 adds an additional resealing step.

The Section 112 Rejection

The issue we find determinative in this appeal is the correctness of the rejection of claims 12-14 as not satisfying the requirements of 35 U.S.C. 112. The examiner stated that he regarded those claims as "unduly broad and indefinite in failing to define the minimum time and temperature relationship of the corrosion treatment." He further thought that expressing the time period of the corrosion treatment in terms of obtaining the desired result of producing some "subjective", "relative and indefinite appearance", viz. an "opaque appearance", was particularly meaningless and indefinite, inasmuch as appellant, in his view, had not satisfactorily defined what constitutes a

"metallic" appearance or an "opaque" appearance.

The board sustained the rejection "for the reasons given by the examiner," adding:

We feel impelled also to comment that while the specification * * * lists as one essential step the formation of an aluminum oxide layer, no claim requires such a step. The oxide layer called for by the claims could be an oxide of any metal or non-metal e.g., lead, iron, phosphorus, etc., which further points up the essential correctness of the examiner's position.

Turning first to the above-quoted criticism of the board concerning the failure of the claims to recite that a porous *aluminum* oxide is formed on the aluminum surface, we agree with appellant that express inclusion of "aluminum" as a modifier of "oxide coating" is not necessary in the present circumstances. The evidence of record, notably the Tosterud² and Edwards³ patents cited in support of the prior art rejection, amply establishes that the term "oxide coating", as it is employed in the claim, connotes an aluminum oxide coating to those in this art.⁴

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The criticisms of the examiner, however, require further and deeper consideration. We have determined that while some of the points he raised are not sustainable, we are in agreement that the claims fail to define the subject matter sought to be patented with the particularity and distinctness required by the second paragraph of 35 U.S.C. 112.

In direct response to the rejection as framed by the examiner, appellant argues in his brief before us that his specification makes it clear that a wide variety of corrodants may be utilized in the "corrosion treatment" step of his process, and that the time and temperatures employed in that step may vary widely depending on the particular corrodant selected and its concentration. His position is that the broad claim language he has selected delineates clearly the full scope of his invention and is permitted by the third paragraph of 35 U.S.C. 112, which provides in pertinent part:

An element in a claim for a combination may be expressed as a * * * step for performing a specified function without the recital of * * * material, or acts in support thereof, and such claim shall be construed to cover the corresponding * * * material, or acts described in the specification and equivalents thereof.

[1] It is true that claim language which expresses performing particular steps until a given result or state is reached, or a given condition obtained, *may* be proper under §112, third paragraph. This is with the proviso, however, that the claim otherwise satisfies the requirements of the first and second paragraphs of §112. See *In re Lundberg*, 44 CCPA 909, 244 F.2d 543, 113 USPQ 530 (1957); *In re Arbeit*, 41 CCPA 719, 206 F.2d 947, 99 USPQ 123 (1953). We might find appellant's arguments to be convincing if the sole issue were whether the instant claims were adequately supported under the requirements of the first paragraph. However, we cannot even reach that issue since we are not satisfied that these claims comply with the second paragraph of §112. Specifically, we are not sure that interested parties would be able to determine with adequate precision just what is the "opaque appearance" which indicates completion of the "corrosion treatment" step.

Initially, one might well wonder, as did the examiner, what distinction there is between a "metallic appearance" of a surface and an "opaque appearance" of that surface, particularly since metallic surfaces themselves are "opaque" at least in the usual sense of being non-transparent. In an affidavit filed below, the tenor of which is paraphrased in part in his brief here, appellant explains the intended significance of those terms:

It is not possible to properly cover the full scope of the invention if any time-temperature relationship of the corrosion treatment is defined in the claims, since these parameters vary widely depending upon the corrosion agent employed, its concentration, temperature, etc. On the other hand, those skilled in the art of finishing aluminum would readily recognize when the metallic appearance of the

surface being treated with a corroding solution is supplanted by an opaque appearance. The significance of "opaque appearance" being simply that the metallic appearing surface can no longer be seen which is readily evident by observation. A metallic appearance is readily recognized by those skilled in this art and is believed to be a clear term on its face.

When we turn to appellant's specification as permitted by the third paragraph of § 112, however, the matter does not appear so clear-cut or straight forward. The specification states:

* * * the three steps set forth hereinabove ["forming" an oxide layer, "sealing" and "corroding"] produce a finish which is best described as being non-metallic and opaque but having a certain degree of luster. On the other hand, the above steps when combined with an etching step have been found to produce what may be described as a nonmetallic, frosted finish which lacks the luster of the opaque finish. Thirdly, a highly glazed or porcelain-like finish is also contemplated and it is to be understood that the production of this type of finish is dependent upon the particular sealant which is employed in the second step as will be described more fully hereinafter. * * *

After describing the particular oxide-forming techniques and explaining that various sealants may be employed, including alkali metal

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silicates as well as certain acetates, the specification goes on to state:

* * * the anodized and sealed surface produced by the above indicated steps presents a metallic appearing surface which is either highly reflective or slightly frosted in appearance depending upon whether the pretreatment included polishing or etching. However, during the corroding step, this finish is made opaque by the controlled corroding of the sealed coat. In the case of an aluminum alloy containing magnesium such as alloy No. 5357, this corroding tends to whiten the surface so as to create an opaque or glazed surface depending upon the particular sealant which is used as will be defined hereinafter. * * *

Appellant then describes the factors governing the choice of sealants:

The second factor in determining the choice of seals and corroders is governed by the particular type of finish which is desired. In this regard, it has already been pointed out that the types of finishes may be categorized according to their appearance as being frosted, opaque or glazed. In order to achieve the latter type, i.e. the glazed or porcelain-like finish, a silicate seal must be selected as the first sealant since the presence of silicon oxide is required for the formation of the glazed appearance. * * * In order to produce the frosted finish, the pre-treatment must include the etching step previously described although the type of seal which follows this step is not critical. Thus, the corrodent may be any of the previously mentioned corrodents provided that it is consistent with the selected type of seal having in mind the rules set forth as comprising the first factor of selection. Lastly, an opaque finish is achieved if the pre-treatment does not include an etching step and if the seal is other than a silicate seal. Thus, each of the above listed sealants may be considered as producing similar finishes insofar as the latter fall within the opaque classification.

In Example 1, appellant employs sodium silicate as a sealant to produce what he variously describes as a "whitened surface" or a "highly glazed finish, i.e., the enamel-like or porcelain-like finish having a white coloring." In Example 2, appellant employs nickel acetate as a sealant to produce an "opaque finish" not "quite as glossy" as the finish produced in Example 1, and appearing as a "flat paint rather than an enamel or porcelain" finish. In Example 3, a "frosted" finish is produced which is "neither porcelain-like or opaque as these terms have been defined hereinabove," and which is "not glossy" and does not have "the flatness of the opaque finish." Appellant's brief here asserts that Examples 1 and 3 "support all of the claims on appeal."

It is evident to us from the above summary of the description, definitions and examples appearing in appellant's

specification, that the claims on appeal are inherently inconsistent. As used and defined in the specification, and unmodified by other terminology, an "opaque finish" is a flat-appearing finish which is *not* obtained when an alkali metal silicate is used as a sealant. Indeed, the latter sealant is said to produce a glazed or porcelain-like finish ⁵ having a white coloring. The claims, on the other hand, specifically call for sealing the oxide surface with an alkali silicate in order to ultimately obtain an "opaque appear-

[2] ance." No claim may be read apart from and independent of the supporting disclosure on which it is based. We are thus required to read the claims in light of the disclosure and in that light the term "opaque finish" as it appears in the preamble of each claim must take on the meaning ascribed to it in that disclosure. The result is an inexplicable inconsistency within each claim requiring that the rejection under 35 U.S.C. 112 on grounds of indefiniteness be sustained. We will not, therefore, discuss the other issues in the case.

The decision of the Board of Appeals is *affirmed*.

Footnotes

Footnote 1. Appearing in application serial No. 281,049, filed May 16, 1963 for "Methods of Producing Opaque Surfaces on Aluminum," as a continuation-in-part of serial No. 836,056, filed August 26, 1959.

Footnote 2. U. S. Patent 1,946,150, issued February 6, 1934.

Footnote 3. U. S. Patent 1,946,153, issued February 6, 1934.

Footnote 4. Tosterud states:

The term "oxide coating" as used herein is a well known designation in the art to describe a layer of aluminum oxide artificially produced on the aluminum surface by chemical treatment, with or without the use of externally applied electrical energy, but the term does not include the thin film of aluminum oxide which is naturally formed upon the metal by contact with the air.

Similarly, Edwards states:

By various known processes aluminum surfaces may be provided with what is generally termed an "oxide coating" Such a coating is composed in large part of aluminum oxide. * * *

Footnote 5. It is clear from the following dictionary definitions that glazed or porcelain surfaces are not necessarily, even ordinarily, opaque. Webster's New International Dictionary, 2nd Edition (1956) defines "porcelain" as "A fine ware differing from ordinary pottery in being translucent and in its superior whiteness * * *;

"enamel" as "1. A vitreous composition, usually opaque or semiopaque, applied by fusion to the surface of metal * * * for protection or ornamentation. In ceramics, such a composition, when transparent, is usually called a glaze. 2. Any glossy surface resembling enamel;"

"glaze" as "2. To incrust, cover, or overlay with a thin surface, consisting of, or resembling, glass * * * ; hence, to render smooth or glossy; * * *"; and

"opaque" as "2. Not reflecting or giving out light; dark, not shining. 3. Impervious to the rays of light; not transparent."

- End of Case -

FULL TEXT OF CASES (USPQ2D)

All Other Cases

**Orthokinetics Inc. v. Safety Travel Chairs Inc. (CA FC) 1 USPQ2d
1081 Orthokinetics Inc. v. Safety Travel Chairs Inc.**

U.S. Court of Appeals Federal Circuit
1 USPQ2d 1081

**Decided December 5, 1986
Nos. 85-2779 and 85-2812**

Headnotes

PATENTS

1. Patentability/Validity -- Anticipation -- Prior art (§ 115.0703)

Patentability/Validity -- Anticipation -- Publication (§ 115.0705)

Patentability/Validity -- Obviousness -- In general (§ 115.0901)

Federal district court, in granting judgment notwithstanding verdict holding claims for wheelchair invalid as anticipated and obvious, erred by focusing on patent challenger's evidence regarding "on sale/public use" issue, rather than on evidence in support of jury's findings, erred by referring to jury's verdict as "ambiguous," since resolution of ambiguities is province of jury, erred by concluding that claimed invention was disclosed in publication, since claimed "head restraints" were not shown in that reference, and erred by employing inappropriate "would have been able to produce" test of obviousness.

2. Patentability/Validity -- Construction of claims (§ 115.03)

Federal district court, in granting judgment notwithstanding verdict holding claims for wheelchair invalid for indefiniteness under 35 USC 112, erred by requiring that one claim "describe" invention, since that is role of specification, and by applying "full, clear, concise, and exact" requirement of Section 112 to claim, since such section applies only to disclosure part of specification, and also erred by applying "able to produce" standard in place of statutory "obvious" standard of 35 USC 103.

3. Infringement -- Contributory infringement (§ 120.13)

Willful infringement is not prerequisite for imposition of personal liability upon corporate officers for their company's direct infringement.

Particular patents -- Wheelchairs

3,815,586, Kazik, Orthopedic Chair With Scoliosis Pads, JNOV holding claims 5 and 6 invalid reversed.
Re. 30,867, Gaffney, Travel Chair, JNOV holding claims 1-5 invalid reversed.

Case History and Disposition:

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Appeal from District Court for the Northern District of Ohio, Aldrich, J.

Action by Orthokinetics Inc., against Safety Travel Chairs Inc., Entron Inc., William J. Pivacek, Clark Shipman, and William J. Cole, for patent infringement. From decision granting defendants' motions for JNOV and for new trial, both parties appeal. Reversed and remanded in part and affirmed in part.

Attorneys:

Henry C. Fuller, and Fuller House & Hohenfeldt, S.C. both of Milwaukee, Wis. (Daniel J. Sammon, and Watts, Hoffmann, Fisher & Heinke Co., both of Cleveland, Ohio, on the brief) for appellant Orthokinetics Inc.

Charles B. Lyon, and Renner, Otto, Boissellee & Lyon, both of Cleveland, Ohio (Gordon D. Kinder, on the brief) for appellee Safety Travel Chairs Inc., et al.

Judge:

Before Markey, Chief Judge, Newman, Circuit Judge, and Swygert, Senior Circuit Judge (for the Court of Appeals for the Seventh Circuit, sitting by designation).

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Opinion Text

Opinion By:
Markey, Chief Judge.

Appeal and cross-appeal from a judgment of the United States District Court for the Northern District of Ohio, Civil Action No. C81-130. In Appeal No. 85-2779, Orthokinetics, Inc. (Orthokinetics) appeals from orders: (1) granting a judgment notwithstanding the verdict (JNOV) holding that: (a) claims 5 and 6 of its U.S. Patent No. 3,815,586 ('586 patent) are invalid under 35 U.S.C. §102(b) and §103; (b) claims 1-5 of its U.S. Patent Re. 30,867 ('867 patent) are invalid under 35 U.S.C. §103 and §112; (c) the defendant officers of defendant corporations are not personally liable for patent infringement and the corporations are free from charges of willful infringement; and (2) conditionally granting a new trial. We reverse and remand with instructions to reinstate the jury verdicts. In Appeal No. 85-2812, the defendants (collectively, Safety) appeal from the judgment entered on the verdict on patent infringement and misuse, and denial of a new trial on those issues. We affirm.

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BACKGROUND

1. The Claimed Inventions

Orthokinetics manufactures products for invalids and handicapped individuals, including pediatric wheelchairs. It is the assignee of the '586 patent issued to Raymond A. Kazik (Kazik) on June 11, 1974, entitled "Orthopedic Chair With Scoliosis Pads" and of the '867 patent reissued to Edward J. Gaffney (Gaffney) on February 16, 1982, entitled "Travel Chair".

The '586 patent discloses a wheelchair for treating persons, especially children, afflicted with scoliosis or curvature of the spine. The orthopedic wheelchair has a head restraint and a pair of laterally and vertically adjustable scoliosis pads attached at opposite sides of the chair and so positioned as to provide therapeutic contact with opposite sides of a person seated in the chair. The relevant claims read:

1. In a chair having a seat, a back, and means for supporting the same, the improvement comprising a pair of scoliosis pads each adapted to bear against the sides of a human body, and means for mounting said pads adjacent to opposite side of said chair in such position as to provide therapeutic contact with opposite sides of a person seated in said chair for treatment of curvature of the spine.
2. The improvement defined in claim 1 wherein said mounting means for each pad is vertically adjustable to permit said pads to be positioned in a vertically staggered relationship to develop a therapeutic force couple across said person's trunk tending to straighten out said curvature of the spine.
5. The improvement of claim 2 in combination with a head restraint which coacts with the scoliosis pads to exert therapeutic pressure on the spine.
6. The improvement of claim 5 in which said head restraint comprises pads which embrace the head and means for adjustably positioning said pads with respect to said back.

On January 26, 1981, Orthokinetics sued, alleging infringement of claims 5 and 6 of the nine claims in the '586 patent. On December 31, 1977, it had disclaimed claims 1 through 4. Because claims 5 and 6 depend from claims 1 and 2, however, they contain all of the limitations of claims 1 and 2.

The '867 reissue patent discloses a collapsible pediatric wheelchair which facilitates the placing of wheelchair-bound persons, particularly children, in and out of an automobile. Orthokinetics asserted infringement of claims 1 through 5 by Safety. Claim 1 reads (underscoring indicates language added by reissue):

1. In a wheel chair having a seat portion, a front leg portion, and a rear wheel assembly, the improvement wherein

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said front leg portion is so dimensioned as to be insertable through the space between the doorframe of an automobile and one of the seats thereof whereby said front leg is placed in support relation to the automobile and will support the seat portion from the automobile in the course of subsequent movement of the wheel chair into the automobile and the *retractor* means for *assisting the attendant in* retracting said rear wheel assembly upwardly independently of any change in the position of the front leg portion with respect to the seat portion *while the front leg portion is supported on the automobile* and to a position which clears the space beneath the rear end of the chair and permits the chair seat portion retracted rear wheel assembly to be swung over and set upon said automobile seat.

Claim 2 eliminates the language added by reissue in claim 1 and adds:

wherein said wheel chair has a chair frame including back portion extending upwardly from said seat portion and a front leg portion extending downwardly from said seat portion and wherein said rear wheel assembly includes a rear wheel frame that extends forwardly from said rear wheels and wherein said means for retracting said rear wheel assembly includes means pivotally connecting the front of said rear wheel frame to said chair frame, and a retractable strut connecting between said rear wheel assembly and said chair frame to support the wheel chair on the rear wheel assembly and to retract the rear wheel assembly upwardly under the chair seat portion by swinging said rear wheel frame upwardly.

Claim 3 limits the rear wheel frame of claim 2 to one which "comprises an upwardly arched undercarriage extending between said chair frame and rear wheels." Claim 4 limits the arch of the undercarriage of claim 3 to one which "substantially matches the angle between said seat portion and said front leg portion whereby said undercarriage swings into close proximity to said leg portion and seat portion when said rear wheel assembly is retracted." Claim 5 limits the chair frame of claim 3 to one which "comprises spaced support tubes, said upwardly arched undercarriage fitting between said tubes when the undercarriage is retracted."

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All five claims asserted are independent claims.

II. Procedural History

Orthokinetics introduced the Travel Chair to the market in November of 1973. In 1978, Safety Travel Chairs, Inc. (STC) began to sell similar chairs manufactured by Entron, Inc. (Entron). William J. Pivacek, Clark Chipman, and William J. Cole established STC and were the stockholders and officers of STC and Entron. When Orthokinetics sued STC, Entron, Pivacek, Chipman, and Cole, it alleged willful infringement of claims 5 and 6 of the '586 patent and various claims of its then U.S. Patent No. 3,891,229 ('229 patent). When the '229 patent reissued as the '867 patent on February 16, 1982, Orthokinetics amended its complaint to allege infringement of claims 1-5 of that patent, and demanded a jury trial. Safety answered that the patents were invalid and not infringed, and counterclaimed that Orthokinetics had misused its patents when it filed its complaint.

On the liability issues only, trial before a six-member jury was commenced on January 4, 1984, and continued until January 16. Unfortunately, the parties and the court did not decide, and apparently did not discuss, in a pretrial conference or otherwise before trial, just what the jury would be asked to do (*e.g.* , return a general verdict, a general verdict accompanied by answers to interrogatories, or a series of special verdicts on individual issues). At the trial, the district court denied numerous motions for directed verdicts filed by the parties. Under Fed.R.Civ.P. 49 (the parties dispute whether under Rule 49(a) or (b)), the district court submitted to the jury a series of 54 jointly-prepared questions (samples of which are in the attached appendix). The questions recognized the appropriate burdens to be met by each of the parties as well as the corresponding standard of proof with respect to each issue. The jury returned its answers to the questions on anticipation, obviousness, infringement, willful infringement, misuse, and personal liability of the corporate officers. All were favorable to Orthokinetics. Viewing the obvious/nonobvious conclusion as one that could be made only by the court, and therefore

considering the jury's nonobvious verdict, *after* it was returned, to have been merely "advisory", the district court entered judgment on January 30, 1984 for Orthokinetics on the infringement and misuse issues only. On February 23, 1984, because it felt validity of the patents had not been decided, the district court denied Orthokinetics' motion for a temporary restraining order and preliminary injunction. On July 17, 1984, on becoming aware of this court's statement that "[t]he obviousness/nonobviousness issue is a legal issue and may be submitted to the jury with proper instructions," *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 894-95, 221 USPQ 669, 674 (Fed. Cir.), *cert. denied*, 469 U.S. 857 (1984), the district court entered judgment on the jury verdicts on patent validity and willful infringement.

Safety filed motions for JNOV on the issues of validity, infringement, and patent misuse, and in the alternative for a new trial.

III. Summary of the District Court's Opinion

On June 14, 1985, the district court filed a 69-page unpublished opinion, vacated its January 30 and July 17, 1984 judgments, and dismissed the complaint and counterclaim. It granted Safety's JNOV motion on validity, holding claims 5 and 6 of the '586 patent invalid because the claimed inventions were: (1) on sale or in public use, under §102(b); and (2) described in a printed publication under §102(b); and (3) obvious under §103. The district court held claims 1-5 of the '867 patent invalid as: (1) indefinite under §112; and (2) drawn to inventions that could have been obvious under §103.

The district court denied and granted portions of Safety's motion for JNOV on infringement. In its denial, it held STC and Entron guilty of infringement. In its grant, it held that (1) Chipman, Cole, and Pivacek had not infringed either of the two patents and were not personally liable for their corporation's infringement; and (2) no defendant had committed acts of willful infringement.

The district court denied Safety's motion for JNOV on patent misuse.

The district court conditionally granted Safety a new trial if this court were to reverse the district court's entry of JNOV holding the patents invalid. *See* Fed. R. Civ. P. 50(c)(1), 59(a).

On August 9, 1985, the district court amended its opinion in response to a motion filed by Safety.

ISSUES

(1) Whether the district court erred in granting Safety's motion for JNOV on validity of the '586 and '867 patents.

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(2) Whether the district court erred in denying Safety's motion for JNOV on infringement.

(3) Whether the district court erred in granting Safety's motion on personal liability of corporate officers.

(4) Whether the district court erred in granting Safety's motion for JNOV on willful infringement.

(5) Whether the district court erred in denying Safety's motion for JNOV on patent misuse.

(6) Whether the district court abused its discretion in conditionally granting Safety a new trial.

OPINION

(1) Safety's Motion for JNOV on Validity

A. Introduction

This appeal presents an uncommon and somewhat incongruous situation. The district court entered JNOV on validity in favor of the party who had the burden at trial to prove facts by clear and convincing evidence that would require a conclusion of obviousness. 35 U.S.C. §282; *see, e.g., Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1550, 220 USPQ 193, 199-200 (Fed. Cir. 1983); *Moore v. Shultz*, 491 F.2d 294, 298-99, 180 USPQ 548, 551

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(10th Cir.), *cert. denied*, 419 U.S. 930 [183 USPQ 385] (1974). Under the law set by Congress, a jury or a court may reach a conclusion that a patent remains valid *solely* on the failure of the patent challenger's evidence to convincingly establish the contrary. A patent being presumed valid at birth, §282, a patentee need submit *no* evidence in support of a conclusion of validity by a court or a jury. If the patent challenger introduces evidence that might lead to a conclusion of invalidity, a patentee would be well advised to introduce evidence sufficient to rebut that of the challenger. If the challenger's evidence be totally inadequate, a patentee's motion for judgment or directed judgment that the challenger's §282 burden had not been carried would be appropriately granted before the patentee introduces any rebuttal evidence.

This appeal also illustrates the confusion created in the field of patent litigation by the unwillingness of patentees and alleged infringers to proceed under the rules applicable to all other types of litigation in which a statute or case law has assigned burdens of proof. Courts can hardly be criticized for confusing the burden assignment when counsel proceed as though the statute, §282, did not exist.

As here, patentees have historically sought to "go first" with testimony on validity, on the empirically unproven premise that a favorable "first impression" of the merits of the invention will carry through to victory. Courts and alleged infringers have acquiesced in the practice. The resulting erroneous but clear impression that patentees bear a burden of "proving validity" has frequently resulted in cluttered records, irrelevant detours, undue burdens on the judicial process, and unnecessary work for the trial court.

Recognizing that trials conducted in accord with the statutorily assigned burdens would not result in assured victory or more victories for either side, courts should consider pretrial orders designed to facilitate such trials. Similarly, courts should consider pretrial orders in jury trials that specify precisely what the jury will be asked to do after it has been given instructions prepared in light of the evidence and at the end of its deliberations: (1) return a general verdict ("we find for plaintiff/defendant"); (2) return a general verdict accompanied by answers to factual interrogatories prepared in light of the evidence; (3) return special verdicts on specific issues appearing in the evidence ("we find for plaintiff/defendant on the XXXXXXXX issue"; or (4) merely "advise." Unfortunately, as counsel stated at oral argument, that was not done here.

B. Standard of Review

This court has recently reiterated the standard under Fed.R.Civ.P. 50(b) concerning a motion for JNOV in relation to an issue on which the movant did not have the burden of proof:

A trial judge presented with a motion for JNOV (1) must consider all the evidence in a light most favorable to the nonmover, (2) must not determine credibility of witnesses, and (3) must not substitute his or her choice for the jury's in finding facts, drawing inferences, or deciding between conflicting elements in the evidence.

DMI, Inc. v. Deere & Co., 802 F.2d 421, 425, 231 USPQ 276, 278 (Fed. Cir. 1986); *See Weinart v. Rollform Inc.*, 744 F.2d 797, 805, 223 USPQ 369, 373 (Fed. Cir. 1984), *cert. denied*, 105 S.Ct. 1844 (1985). If then the district court is "convinced upon the record before the jury that reasonable persons could not reach or could not have reached a verdict for the non-mover, it should grant the motion for directed verdict or for JNOV." *Connell*, 722 F.2d at 1546, 220 USPQ at 197; *see Quaker City Gear Works, Inc. v. Skil Corp.*, 747 F.2d 1446, 1454-55, 223 USPQ 1161,

(Fed. Cir. 1984), *cert. denied*, 105 S. Ct. 2676 (1985).

To convince this court that a trial judge erred in granting a motion for JNOV, an appellant need only show that there was substantial evidence to support the jury's findings and that those findings can support the jury's legal conclusion. *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 619, 225 USPQ 634, 636 (Fed. Cir.), *cert. dismissed*, 106 S. Ct. 340 (1985); *Railroad Dynamics, Inc. v. A. Stucki Co.*, 727 F.2d 1506, 1512, 220 USPQ 929, 936 (Fed. Cir.), *cert. denied*, 469 U.S. 871 (1984). " 'Substantial' evidence is such relevant

evidence from the record taken as a whole as might be accepted by a reasonable mind as adequate to support the finding under review." *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 893, 221 USPQ 669, 673 (Fed. Cir.), *cert. denied*, 469 U.S. 857 [225 USPQ 792].

Having carefully reviewed the record to determine whether there was such substantial evidence in support of each of the jury's critical findings, we are convinced that the district court inappropriately invaded the province of the jury, in derogation of Orthokinetics' rights as expressed in the Seventh Amendment to the Constitution.

C. The '586 patent

(i) On Sale/Public Use, §102(b)

[1] The jury specifically found (question No. 31) that Safety failed to prove by clear and convincing evidence that the "subject matter" of claims 5 and 6 of the '586 patent was offered for sale or publicly used more than one year before its December 4, 1972 filing date. Because of that finding, the jury had no reason to, and did not answer the interrogatory on whether Orthokinetics had proved that what Safety alleged was a sale offer/public use was in fact done for an experimental purpose. The district court held that the jury's finding of no offer for sale or public use was "without basis in the record."

It was undisputed that Kazik and Gaffney took a prototype chair Kazik had built to several facilities including the Southern Colony Nursing Home in Wisconsin. On the basis of its view of Orthokinetics' answers to interrogatories and Kazik's trial testimony, the district court concluded that the chair taken to Southern Colony had all the elements of claims 5 and 6. The court stated that the "only testimony to the contrary, certain ambiguous remarks by Gaffney, contradict Orthokinetics' interrogatory answers." The court did not cite the record or otherwise identify the "remarks" referred to.

The district court then determined that the evidence "unmistakably reveals that the purpose of the trips to Southern Colony and other institutions was to commercialize the scoliosis pad chair," (though the jury made no finding on the purpose of the trips) and thus Orthokinetics was "not entitled to the 'experimental use' exception" (on which the jury also made no finding). Because there was insufficient evidence presented concerning the chairs brought to institutions other than Southern Colony, we mention those chairs no further.

The district court focused on evidence in support of Safety's contentions, rather than on evidence in support of the jury's findings. That approach constitutes reversible legal error, particularly where, as here, it involves a virtual disregard of substantial evidence on which the jury could reasonably have reached a contrary determination. In referring to the evidence in support of the jury's verdict, the district court dismissed it as being "ambiguous". In that characterization, the district court lost sight of the rules, i.e., that resolution of ambiguities (assuming they existed) is a role assigned the jury, and inferences are to be drawn in favor of the nonmovant, Orthokinetics. Thus the court's dismissal of the evidence relied on by the jury as merely "ambiguous" was further legal error.

Orthokinetics points to substantial evidence showing that the Southern Colony chair lacked, among other things, a head restraint coacting with scoliosis pads with vertical adjustability, and that that chair's entire supporting structure and pad adjusting system was completely changed after the trip to Southern Colony. Alternatively, Orthokinetics challenges the district court's independent determination that it had not established that that chair was taken to Southern Colony for experimental purposes.

Focusing on its *own* evidence, Safety responds that "neither contention [of Orthokinetics] is supported by the evidence as a whole," thereby indicating a misunderstanding of our appellate role. If we were to determine what the "evidence as a whole" supports, there would be no need for trials or for Rule 50(b). Indeed, Safety's entire argument on appeal reflects its misunderstanding of the rules of Civil and Appellate Procedure governing a jury's role, a district court's role in reviewing motions for JNOV, and this court's role in reviewing that determination. Hence, acceptance of Safety's approach would not only violate established standards of review, but would render a jury impotent.

Safety concedes that the parties submitted evidence on both sides of each issue. Safety then attacks Orthokinetics' evidence, which is not at issue. As above indicated, Safety bore the burden under 35 U.S.C. §282, and the jury had the right to reject *its* evidence as insufficient to carry that burden. Under those circumstances, this court may determine only whether the evidence the jury could have believed in making its critical findings was substantial. Because a jury must by definition be permitted to accept some probative evidence and reject other probative evidence, we may not decide whether we would as jurors have found Orthokinetics' evidence, in Safety's words, "believable in light of the evidence as a whole." This is not a case in which there was no evidence in support of a jury's finding, or one in which the only evidence relating to a finding was contrary to that finding. *See Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1550, 220 USPQ 193, 200 (Fed. Cir. 1983) ("the jury finding that there was 'no prior art' could not possibly stand in the face of the numerous clearly relevant prior art patents in the trial record").

As too often occurs, the parties here have difficulty restricting themselves to the language of the claims. In distinguishing the Southern Colony chair, for example, Orthokinetics cites a structural feature, "shown" in the patent and a feature that was later modified; yet those features are not found as limitations in the claims. There is, however, substantial evidence that the Southern Colony chair did not have the claimed elements "a head restraint which coacts with the scoliosis pads" or a "head restraint which comprises pads which embrace the head." It is clear that the jury could have so concluded on the evidence presented to it. Gaffney testified as to that difference, and the exhibits showing the Southern Colony chair fully support that testimony. Moreover, Kazik did not testify, and Orthokinetics' interrogatory answers did not state, that that chair had a head restraint coacting with the pads. Whether there may or may not have been evidence that might have supported a contrary conclusion is simply irrelevant. Because there was substantial evidence supporting it, the jury's determination that there was no offer for sale or public use of the *claimed* invention should not have been disturbed. The judgment NOV on the on sale or in public use bar must be vacated and judgement must be entered on the jury's verdict.

Because there was substantial evidence on which a reasonable jury could have found that Safety failed to prove an offer for sale or public use of the claimed invention, we need not discuss the district court's independent determination that Orthokinetics had not established an experimental purpose in the trip to Southern Colony. In light of the instructions given the jury, moreover, it must be concluded that any consideration it gave the question of experimental purpose was resolved by the jury in Orthokinetics' favor. Nonetheless, for the benefit of the parties, we note that Orthokinetics did come forward with evidence of an experimental purpose sufficient to have convinced the jury that even the possibility of a public use bar had been "negated". *TP Laboratories, Inc. v. Professional Positioners, Inc.*, 724 F.2d 965, 971, 220 USPQ 577, 582 (Fed. Cir.), *cert. denied*, 469 U.S. 826 [224 USPQ 616] (1984); *see also In re Smith*, 714 F.2d 1127, 218 USPQ 976 (Fed. Cir. 1983).

Gaffney testified at trial that the purpose of the trip to Southern Colony was to "test [the chair] with some handicapped children to see if it was ready" and "to see if the chair was ready to be commercialized and if it would do the job we wanted it to do." The jury had the right to construe that testimony as establishing that Orthokinetics was still in an experimental phase when the visit was made to Southern Colony. Whether Kazik's statement that the trip was to see "the scope of the market" might support a contrary conclusion is of no moment in the course of considering a motion for JNOV. The district court's characterization of Kazik's and Gaffney's testimony as "undisputed" is but an indication that the jury was entitled to resolve a conflict, if any existed, between them, and that any inferences to be drawn from that testimony must be drawn adversely to Safety.

(ii) Printed Publication

The jury found (question No. 26) that Safety failed to prove that the chair claimed in the '586 patent was present in its entirety in Kamenetz, *The Wheelchair Book: Mobility for the Disabled* (1969) (*The Wheelchair Book*). The

district court held that *The Wheelchair Book* "clearly discloses" all five elements of claims 5 and 6 of the '586 patent.

Orthokinetics' witnesses testified that the structure disclosed in *The Wheelchair Book* does not include "a head restraint which coacts with the scoliosis pads to exert therapeutic pressure on the spine," as set forth in the claims, particularly because the "head rest" in *The Wheelchair Book* is only a head rest and not a "head restraint" at all. A reasonable jury could clearly have found from that testimony that *The Wheelchair Book* does not anticipate the claimed inventions because it discloses no "head restraint"

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and certainly no "head restraint which coacts with the scoliosis pads to exert therapeutic pressure on the spine." The district court correctly determined that *The Wheelchair Book* shows "headrests, headcushions, headwings and special head supports (including slings, caps, and collars)." That the reference shows those items, however, is simply no basis for finding anticipation. The claims require "head restraints" that are not shown by the reference. The district court was in no position to conclude that headwings embrace the head like a head restraint. Orthokinetics' expert, Professor Cherry, testified that headwings normally "support" the head, but do not "restrain" it. Because anticipation requires the disclosure in a prior art reference of each and every element as set forth in the claim, *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 771, 218 USPQ 781, 789 (Fed. Cir. 1983), *cert. denied*, 465 U.S. 1026 [224 USPQ 520] (1984), *The Wheelchair Book* cannot anticipate the claimed inventions set forth in claims 5 and 6. *See RCA Corp. v. Applied Digital Data Systems, Inc.*, 730 F.2d 1440, 221 USPQ 385 (Fed. Cir.), *cert. dismissed*, 468 U.S. 1228 (1984).

There being substantial evidence capable of supporting the jury's finding of no anticipation, and thus a failure of Safety to prove anticipation, the granting of Safety's motion for JNOV on anticipation by *The Wheelchair Book* must be reversed.

(iii) Obviousness

The jury concluded (question Nos. 27-29) that Safety had failed to prove by clear and convincing evidence that the inventions set forth in claims 5 and 6 would have been obvious to persons of ordinary skill in any of a number of arts, including a person "with mechanical skills who has the knowledge of the needs of handicapped children." The district court said that "[t]he jury's answers to [those questions] were without foundation in the evidence." Again the district court focused on evidence in support of Safety's burden. Noting that Orthokinetics' disclaimer of claims 1-4 was in light of U.S. Patent No. 3,640,571, to Michael Keropian (Keropian), that Keropian disclosed all the elements recited in claims 1-4, and finding that *The Wheelchair Book*, H. Willard & C. Spackman, Occupational Therapy (4th ed. 1971), and U.S. Patent No. 3,269,768 to John C. Kinney (Kinney) disclose "head restraints", the district court concluded that it would have been obvious to add the "headrests to the Keropian scoliosis system, or to add the Keropian vertically adjustable torso system to the Kinney head rest and chair mechanism." With those references, the court concluded, "a person of ordinary skill in the art . . . would easily have been able to produce the structure defined by the ['586] patent."

Acceptance of the district court's foregoing analysis would make the conduct of the jury trial a pointless exercise. In accord with its instructions, the jury necessarily concluded that the combining of individual items picked from the references as later done by the district court, would not have produced the claimed inventions or would not have been obvious when the invention was made. No basis or reason exists in the record for the district court to have substituted its contrary conclusion. The jury heard the testimony of Safety's own witness, Professor Cherry, who testified on the improvements contributed in the '586 patent. Those improvements did not consist of a mere combining of a "head rest" with Kinney's scoliosis system; they contributed a *coaction* between the pads and a head *restraint* to provide therapeutic pressure at three points. Moreover, that the claims do not contain the phrase "three-point positioning" is not material, the coaction between the pads being effective to produce that result. *See*

In re Antonie , 559 F.2d 618, 619, 195 USPQ 6, 8 (CCPA 1978) (claims need not recite inherent advantages relied on for patentability).

Moreover, the district court's analysis employed an inappropriate "would have been able to produce" test. The statute, §103, requires much more, i.e., that it would have been *obvious* to produce the claimed invention at the time it was made without the benefit of hindsight.

The jury also found (question Nos. 34-37) that Orthokinetics had proved by a preponderance of the evidence that certain objective indicia support the validity of the '586 patent, i.e., unsuccessful attempts by others, long felt need, and commercial success. Though the district court viewed those jury findings as "without factual foundation," the record reflects substantial evidence on which a reasonable jury could have made each of those findings.

Because the district court erred in setting aside the jury's verdict that the inventions set forth in claims 5 and 6 would not have been obvious, the grant of Safety's motion for JNOV on the validity of the '586 patent must be reversed.

D. The '867 Patent

(i) Indefiniteness

The jury found (question No. 51) that Safety failed to prove by clear and convincing

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evidence that the '867 patent was invalid because of claim language that does not particularly point out and distinctly claim the invention. 35 U.S.C. §112, 2d¶. The district court determined otherwise and granted Safety's motion for JNOV.

Claim 1, from which the rest of the claims depend, contains the limitation: "wherein said front leg portion is *so dimensioned* as to be insertable through the space between the doorframe of an automobile and one of the seats thereof."

Noting the testimony of Orthokinetics' expert, Mr. Hobbs, who said the dimensions of the front legs depend upon the automobile the chair is designed to suit, the district court stated:

In response to this testimony, which clearly and convincingly establishes that claim 1 of the ['867] patent does not describe the invention in "full, clear, concise and exact terms," Orthokinetics points only to the conclusory statements of Hobbs, Gaffney and expert witness William McCoy, Jr., that the patent is, in fact definite. These conclusory statements are not an adequate basis for the jury to reject Safety's defense. The undisputed, specific testimony of Gaffney and Hobbs demonstrates that an individual desiring to build a non-infringing travel chair cannot tell whether that chair violates the ['867] patent until he constructs a model and tests the model on vehicles ranging from a Honda Civic to a Lincoln Continental to a Checker cab. Without those cars, "so dimensioned" is without meaning.

[2] The foregoing statement employs two measures impermissible in law: (1) it requires that claim 1 "describe" the invention, which is the role of the disclosure portion of the specification, not the role of the claims; and (2) it applied the "full, clear, concise, and exact" requirement of the *first* paragraph of §112 to the claim, when that paragraph applies only to the disclosure portion of the specification, not to the claims. *Standard Oil Co. v. American Cyanamid Co.* , 774 F.2d 448, 453, 227 USPQ 293, 297 (Fed. Cir. 1985). The district court spoke, inappropriately, of indefiniteness of the "patent," and did not review the *claim* for *indefiniteness* under the *second* paragraph of §112.

A decision on whether a claim is invalid under § 112, Id ¶, requires a determination of whether those skilled in the art would understand what is claimed when the claim is read in light of the specification. *Seattle Box Co. v. Industrial Crating & Packing Inc.* , 731 F.2d 818, 826, 221 USPQ 568, 574 (Fed. Cir. 1984); *In re Morasi* , 710 F.2d 799, 803, 218 USPQ 289, 292 (Fed. Cir. 1983).

It is undisputed that the claims require that one desiring to build and use a travel chair must measure the space between the selected automobile's doorframe and its seat and then dimension the front legs of the travel chair so they will fit in that particular space in that particular automobile. Orthokinetics' witnesses, who were skilled in the art, testified that such a task is evident from the specification and that one of ordinary skill in the art would easily have been able to determine the appropriate dimensions. The jury had the right to credit that testimony and no reason exists for the district court to have simply discounted that testimony as "conclusory".

The claims were intended to cover the use of the invention with various types of automobiles. That a particular chair on which the claims read may fit within some automobiles and not others is of no moment. The phrase "so dimensioned" is as accurate as the subject matter permits, automobiles being of various sizes. *See Rosemont, Inc. v. Beckman Instruments, Inc.*, 727 F.2d 1540, 1547, 221 USPQ 1, 7 (Fed. Cir. 1984). As long as those of ordinary skill in the art realized that the dimensions could be easily obtained, § 112, 2d ¶ requires nothing more. The patent law does not require that all possible lengths corresponding to the spaces in hundreds of different automobiles be listed in the patent, let alone that they be listed in the claims.

Compliance with the second paragraph of §112 is generally a question of law. *Shatterproof Glass Corp. v. Libbey Owens Ford Co.*, 758 F.2d 613, 619, 225 USPQ 634, 636 (Fed. Cir.), *cert. dismissed*, 106 S.Ct. 340 (1985). On the record before us, we observe no failure of compliance with the statute, and thus no basis on § 112 grounds for disturbing the jury's verdict. The district court's grant of Safety's motion for JNOV for claim indefiniteness was in error and must be reversed.

(ii) Obviousness

The jury made numerous findings (question Nos. 39-48) all in support of its conclusion that Safety failed to prove by clear and convincing evidence that the inventions set forth in claims 1-5 of the '867 patent would have been obvious when they were made in view of the prior art to one of ordinary skill in the art.

Having outlined the prosecution history of the '867 reissue patent, the district court stated:

Analysis begins with Gaffney's concession to the [U.S. Patent and Trademark Office] that [U.S. Patent No. 1,693,633 issued to Sarah Allen (Allen)] fully anticipated the original Gaffney patent, rendering

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that patent void under §102. Therefore, the only novel aspects of the reissue patent [i.e. the '867 patent] claims are those portions of such claims which differ from the language of the original patent. Claim 1 added to original Claim 1 a "retractor means for assisting the attendant in retracting said rear wheel assembly . . . while the front leg is supported on the automobile. . . ."

The district court quoted the language added by reissue in claims 2-5 *supra*, and focused on the differences between the reissued '867 claims and those of the original '229 patent. Claims 3-5 were also characterized as adding "minor details."

It is not altogether clear from the passage quoted above whether the district court was comparing the claims of the '867 patent with Allen or with the original patent. A careful reading of the district court's opinion, and its amendments, however, makes clear that the claims of the original patent were applied as prior art against the '867 patent. That was legal error for the reasons discussed in *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1137, 227 USPQ 543, 546-47 (Fed. Cir. 1985), and Safety's attempt to distinguish that case is unpersuasive. If the district court compared the '867 claims with the Allen patent, that comparison was based on an erroneous presumption, i.e., that Gaffney made a "concession" that Allen anticipated the claims of the original patent. Gaffney's reissue oath stated only that he believed "the original patent to be wholly or partly inoperative or invalid because claims 1 and 11 are unpatentable over [Allen]." 35 U.S.C. § 251; *see* 37 C.F.R. § 1.175(1)(1985); *Manual of Patent Examining Procedure* 1414 (5th ed. 1983). That is not, as Safety calls it, a "binding admission" of anticipation. In fact, even a cursory review of the Allen patent shows on its face that the jury could readily have

found that it does *not* disclose each element of Gaffney's original patent.

The district court stated (underscoring indicates amendments adding to the court's original opinion; brackets indicate amendments deleting from the court's original opinion):

Given the jury's findings with respect to the level of ordinary skill in the art, the proper scope and content of the prior art and its details as summarized above, and assuming that the jury's general verdict constitutes a sufficient finding concerning the differences between the prior art and the Gaffney reissue patent claims, the question for this Court is whether any reasonable basis existed for [finding those differences] *their finding* . On consideration, it is eminently clear that no such basis exists -- that is, that all the differences between claims 1 through 5 of the Gaffney reissue patent [are] *and the prior art are such that the claimed invention as a whole would have been obvious in light of the prior art to one of ordinary skill in the art at the time of the Gaffney invention* . [Footnotes omitted.]

The district court's amendment changing "the differences are obvious" to "the claimed invention as a whole would have been obvious to one of ordinary skill at the time of the invention" substituted the correct statutory criteria, §103, for the unauthorized "differences are obvious" standard. Despite that change, however, it is clear from the entire record and from a study of the amended opinion in its entirety, that the court substituted its view for that of the jury on the basis of its belief that the presence of individual elements in separate prior patents required a conclusion of obviousness.

The court concluded that (emphasis added):

clear and convincing evidence demonstrates that in 1972 the holder of a college degree in engineering with experience in the wheel chair fields, presented with the Allen patents and the other patents described above, would doubtless have been *able* to produce the structure defined in claims 1 through 5 of the Gaffney reissue patent; *no probative evidence to the contrary* was presented to the jury. The *prior art suggests the combination both expressly and by implication* , and *no original new patent's result* is achieved which is not suggested by the combinations. Applying the *Railroad Dynamics* test, this Court concludes that the jury's implied conclusion that there were differences between the prior art and the claims in issue is unsupported by substantial evidence. As it did in respect of the '586 patent, the court applied its " *able to produce*" standard in place of the statutory "obvious" standard of §103. There was probative evidence in support of the jury's conclusion (testimony of Hobbs, Gaffney, Kazik, Inouye, Pivacek). Neither the court nor any witness identified what in the references suggested their combination or what in the references would produce the results of the claimed inventions. It is unclear whether the district court believed there were *no* differences between the claimed invention of the '867 patent and the prior art. Though the court listed no differences, it is *undisputed* that there are at least these differences: the combination of legs as lever for loading the chair into an

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automobile and the retraction of the rear wheels by the attendant while the patient remains in the chair. The sole question, therefore, is whether that difference, which we must presume was found by the jury, constituted substantial evidence in support of its nonobvious conclusion.

A review of each of the five prior art references establishes unequivocally that there was substantial evidence in support of the jury's implied findings of those differences. That evidence plus the objective evidence of nonobviousness (commercial success, failure of others, long felt need) supply a fully adequate basis on which a reasonable juror could have concluded that the subject matter as a whole of the inventions claimed in the '867 patent would not have been obvious to one of ordinary skill in the art. Neither the record nor the district court's opinion provides a basis for the substitution of a conclusion to the contrary. Therefore, the district court's setting aside of the jury's verdict upholding claims 1-5 of the '867 patent must be reversed.

(2) *Infringement*

The jury found (question Nos. 1-4) that Orthokinetics had met its burden of proving by a preponderance of the evidence that the accused chairs constituted infringement of claims 5 and 6 of the '586 patent. The testimony of Gaffney and Inouye, which supports that finding, faced no cross-examination and went un rebutted by Safety. The district court correctly denied Safety's motion for JNOV on infringement of the '586 patent.

Safety's sole argument on appeal is directed to matter extraneous to claims 5 and 6 of the '586 patent and is clearly without merit.

The jury found (question No. 15) that Orthokinetics had proved by a preponderance of the evidence that the accused chairs constituted infringement of claims 1-5 of the '876 patent. Safety sought JNOV on this issue, arguing that the claims must be limited to a rigid front leg portion extending to the floor, or to a front leg portion having a caster and a caster board fixedly mounted thereon, the leg portion being no wider than 9 1/2 inches at the caster board.

Because Orthokinetics' completely contrary testimonial evidence was fully adequate to support the jury's findings, the district court correctly denied Safety's motion for JNOV on infringement of the '867 patent. For the same reason, Safety's motion for new trial on infringement was properly denied.

(3) Personal Liability for Infringement

The jury found (question Nos. 5-10, 18-23) that Chipman, Cole and Pivacek were personally liable for acts of direct infringement and for inducing infringement of both patents.

The district court held as a matter of law that, because the jury could not have reasonably found the corporate officers liable for willful infringement, it could not find them personally liable for any infringing acts of the corporations. In attempting to support that holding, Safety argues that good faith belief in invalidity, based solely on a dealer's report that a district court had held the original of the '867 patent invalid, precludes a finding of *any* personal liability. Because neither proposition has any basis in law, we must reverse the district court's grant of Safety's motion for JNOV on the corporate officers' personal liability.

The jury found the corporate officers liable for direct infringement, 35 U.S.C. §271(a), as well as for inducing infringement, §271(b). The district court's opinion did not treat the finding on inducement, but dealt only with general principles involved in imposition of personal liability for acts of a corporation. However, it is well settled that corporate officers who actively aid and abet their corporation's infringement may be personally liable for inducing infringement under §271(b) regardless of whether the corporation is the alter ego of the corporate officer. *Power Lift, Inc. v. Lang Tools, Inc.*, 774 F.2d 478, 481, 227 USPQ 435, 437 (Fed. Cir. 1985).

[3] Corporate officers are presumably aware of what they are doing, and in that sense they can be said to have acted "willfully." However, that does not mean that their acts must rise to the level recognized by the law as constituting willfull infringement as a prerequisite for the imposition of personal liability for the corporation's direct infringement.

To determine whether corporate officers are personally liable for the direct infringement of the corporation under § 271(a) requires invocation of those general principles relating to piercing the corporate veil.

Infringement is a tort, *Carbice Corp. v. American Patents Development Corp.*, 283 U.S. 27, 33, 8 USPQ 211, 213 (1931), and officers of a corporation are personally liable for tortious conduct of the corporation if they personally took part in the commission of the tort or specially directed other officers, agents, or employees of the corporation to commit the tortious act. *See generally* 3A

W. Fletcher, *Cyclopedia of the Law of Private Corporations* § 1135 (rev. perm. ed. 1975). The cases are legion in which courts have recognized and imposed personal liability on corporate officers for participating in, inducing, and approving acts of patent infringement. *See, e.g., White v. Mar-bel, Inc.*, 509 F.2d 287, 185 USPQ 129 (5th Cir. 1975); *Rex Chainbelt, Inc. v. General Kinematics Corp.*, 363 F.2d 336, 150 USPQ 319 (7th Cir. 1966); *see*

generally D. Chisum, *Patents*, § 16.06, at 16-76 to 16-85 (1986).

The evidence established the makeup and control of STC and Entron. Pivacek testified that he was at all material times the President and sole stockholder of Entron and that he elected its Board of Directors. He also testified that he is the President of STC and that he, Cole, and Chipman held all of STC's directorships and owned all of the stock in STC. The evidence firmly establishes that Pivacek, Cole and Chipman were directly responsible for the design and production of the infringing chairs and that they were the only ones who stood to benefit from sales of those chairs. That evidence was fully sufficient to support the jury's imposition of personal liability on Pivacek, Cole, and Chipman for the direct infringement of STC and Entron and for STC's contributory infringement. The district court's setting aside of the jury's findings on personal liability must therefore be reversed.

(4) Willful Infringement of the '867 Patent

Fed. R. Civ. P. 50(a) states that a "motion for a directed verdict shall state the specific grounds therefor." Rule 50(b) states that "a party who has moved for a directed verdict may move to have the verdict and any judgment entered thereon set aside and to have judgment entered *in accordance with his motion for a direct verdict* ." A specific reference to an issue in a motion for JNOV cannot preserve that issue for appeal where that issue was not specifically included in a motion for directed verdict made before the jury retired to consider its verdict. *See, e.g., Kinzenbaw v. Deere & Co.*, 741 F.2d 383, 387, 222 USPQ 929, 931 (Fed. Cir. 1984), *cert denied*, 470 U.S. 1004 (1985).

Faced with its failure to have moved for directed verdict on willful infringement, Safety argues that its motion for directed verdict on infringement encompasses willfulness. That argument is without merit. Infringement and willful infringement are not the same thing, and Rules 50(a) and 50(b) mandate specificity.

Alternatively, however, Safety says Orthokinetics cannot raise on appeal Safety's failure to include willfulness in its motion for directed verdict because Orthokinetics never objected to its inclusion in Safety's motion for JNOV before the district court.

Orthokinetics' reliance here on a page in its brief on the motion is insufficient because that page is not of record before us. Moreover, Orthokinetics' oral statements to the district court indicate that it never intended to contest the inclusion of the issue of willfulness in Safety's JNOV motion. Though the district court might well have refused consideration of willfulness on the motion for JNOV in light of Rule 50(b), it did not. In view of Orthokinetics' failure to raise an objection before the district court, we will consider the issue. *Cox v. City of Freeman, Missouri*, 321 F.2d 887, 891 (8th Cir. 1963).

The district court determined that, because Safety was told by a dealer of a district court's ruling in another case that the original '229 patent was invalid, (*Palmer v. Orthokinetics, Inc.*, 197 USPQ 207 (C.D. Cal. 1977), *rev'd*, 611 F.2d 316, 204 USPQ 893 (9th Cir. 1980)), no reasonable and fair minded juror could have found willful infringement, and set aside the jury's findings that STC, Entron, Cole, and Chipman willfully infringed the '867 patent.

A finding of willful infringement is based on a totality of the circumstances. *See, e.g., Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 1579-80, 230 USPQ 81, 90-91 (Fed. Cir. 1986) and cases cited therein. It is not necessary to determine which combination of facts, among those established by substantial evidence at trial and recognized by this court as capable of contributing to a willfulness finding, were relied upon by the jury. This court, and the district court on the motion for JNOV, must uphold the jury determination of willfulness if there is any set of facts supported by substantial evidence and capable of supporting that jury determination. *See, e.g., Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 619, 225 USPQ 634, 636 (Fed. Cir.), *cert. dismissed*, 106 S.Ct. 340 (1985); *Railroad Dynamics, Inc. v. A. Stucki Co.*, 727 F.2d 1506, 1512, 220 USPQ 929, 936 (Fed. Cir.), *cert. denied*, 469 U.S. 871 [224 USPQ 520] (1984).

In this case, substantial evidence supports the jury's finding (question No. 24) of willful infringement. The evidence shows that Safety did not consult an attorney until after Orthokinetics initiated this action. The district court's view that Safety could have relied on a dealer's report of a district court ruling in the *Palmer* case that the

original

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'229 patent was invalid and thus need not have consulted an attorney is insufficient in this case to set aside the jury's finding of willful infringement. Had Safety relied on that prior district court ruling, one might expect that it would have sought counsel when Orthokinetics informed Safety that that ruling had been reversed on appeal. *See Palmer v. Orthokinetics, Inc.*, 611 F.2d 316, 204 USPQ 893 (9th Cir. 1980), *rev'g*, 197 USPQ 207 (C.D. Cal. 1977). Instead, Safety merely continued to infringe. Moreover, Safety never replied to any of the letters sent by Orthokinetics and declined Orthokinetics' invitation to participate as a protester in the reissue proceedings. The jury could properly have viewed the aforementioned evidence as sufficient to establish Safety's complete disregard of Orthokinetics' patent rights. Therefore, the district court's grant of JNOV on willfulness must be reversed.

The corporate officers being personally liable for the acts of the corporations, and the corporations being liable for willful infringement, the jury's finding that Cole and Chipman are willful infringers must be upheld.

(5) Patent Misuse

Because no prior art anticipated the claims of the '586 patent, Safety's assertion that Orthokinetics is guilty of patent misuse for asserting a patent, the '586 patent, that it knew was invalid under §102(b), is without merit. With respect to the '867 patent, the district court deemed Safety's confused series of assertions, involving the settlement agreement in the *Palmer* case and Palmer's customer, unworthy of analysis and insufficient to overcome the jury's finding (question no. 52) which the district court found to have been supported by substantial evidence. We agree.

The district court correctly denied Safety's motion for JNOV on patent misuse and Safety's motion for a new trial on that issue.

(6) Conditional Grant of a New Trial

This court must review a denial or grant of a motion for a new trial under an abuse of discretion standard. *Medtronic, Inc. v. Intermedics, Inc.*, 799 F.2d 734, 740-41, 230 USPQ 641, 645 (Fed. Cir. 1986); *Railroad Dynamics Inc.*, 727 F.2d at 1512, 220 USPQ at 935. "That question turns on whether an error occurred in the conduct of the trial that was so grievous as to have rendered the trial unfair." *DMI, Inc. v. Deere & Co.*, 802 F.2d 421, 427, 231 USPQ 276, 280 (Fed. Cir. 1986); *see Wilco Chemical Corp. v. Peachtree Doors, Inc.*, 787 F.2d 1545, 1548, 229 USPQ 188, 190 (Fed. Cir.), *cert. dismissed*, 107 S.Ct. 258 (1986).

The district court stated that "a new trial is compelled solely by the standards set forth in the Federal Circuit's post-trial *Structural Rubber Products [Co. v. Park Rubber Co.]*, 749 F.2d 707, 223 USPQ 1264 (Fed. Cir. 1984)] case, when read in conjunction with applicable Sixth Circuit law on Fed. R. Civ. P.49(a)." The district court derived that "Sixth Circuit law" exclusively from "reading liberally," as it said, *Sakamoto v. N.A.B. Trucking Co.*, 717 F.2d 1000, 1006 (6th Cir. 1983).

More specifically, the district court concluded that a new trial would be in order because: (1) the parties "were prejudiced by delivering closing arguments without the benefit of a final -- or even a substantially completed -- version of the special verdict," citing *Sakamoto*; (2) the jury instructions and special verdicts failed to set forth what specific facts had to be found to support a general verdict on validity or infringement, citing *Sakamoto* and *Structural Rubber*; and (3) "substantial injustice ensued from [the court's] efforts to determine the appropriate role of judge and jury at the same time that the Federal Circuit was generating a series of decisions examining the same topic." With respect to reason (3), the district court determined:

Had counsel been aware that factual issues on validity were being submitted to the jury for binding verdicts, they might well have made different submissions, proposals and objections with respect to both the jury instructions and

the special verdict. And had this Court been aware that the validity verdict would be binding, it certainly would have taken a different approach to the validity instructions and verdict.

The district court's reasons for a new trial are based on a speculative and overly expansive view of the case law. Moreover, it does not point to any specific flaws in the instructions as given, or what different proposals, objections, and approach would have been taken or justified.

Regarding reason (1), the *Sakamoto* court held that "the disclosure prior to final argument of at least the *substance* of the Rule 49(a) special verdict interrogatories and supplemental instructions is mandatory." 717 F.2d at 1006 (emphasis added). That court noted "that it may be an abuse of

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discretion to fail to show the Rule 49(a) interrogatories to counsel in advance of argument where, because of exceptional circumstances, such as the complexity of the case, unfairness would otherwise result." However, the *Sakamoto* court determined that the appellant had shown to prejudice from the district court's failure to disclose the additional interrogatory before the summation. Nothing that counsel's failure to object or request further argument, and everyone's awareness of the issue represented by the additional interrogatory, established an absence of prejudice, the Sixth Circuit affirmed the district court's *denial* of a new trial.

Whether the present case may be categorized as falling within Rule 49(a) or Rule 49(b), *Sakamoto* makes clear that Safety must show actual prejudice, which it failed to do. Safety knew what the issues were from the filing of the pretrial briefs onward and certainly when it assisted with the jointly-prepared jury instructions before closing argument. Moreover, like the appellant in *Sakamoto*, Safety made no objection and no request for further argument.

Regarding reason (2), the district court determined that *Sakamoto* "indicates that a general verdict included together with special verdict questions is impermissible, or at best null." For the reasons set forth above, we do not read *Sakamoto* for that proposition.

The district court said *Structural Rubber* mandates "that a general verdict is valid only if it is the product of instructions which clearly lay out alternative mandatory general verdicts when specific facts are found." In this case, however, there was no objection to the instructions as failing to lay out alternative verdicts based on the evidence adduced.

In *Structural Rubber*, this court remanded for a partial new trial because instructions were given on issues on which no evidence was presented. The alternative mandatory verdict instructions discussed in *Structural Rubber* are desirable and facilitate both jury deliberations and appellate review. This court did not hold in that case that every general verdict is invalid if that particular type instruction was not given. Nor did it hold that a new trial is compelled in such instances when the parties have agreed to the instructions given.

Moreover, in the present case, the jury did not return a general verdict ("we find for the plaintiff"). It returned a series of hybrid special verdicts on each issue with answers to questions on what had and had not been proven. In all events, non-objecting parties should not be forced to retry the case merely because the instructions and the form of verdict obtained from the jury did not match those involved in any earlier and different case, particularly where the party who failed to convince the jury has shown no prejudice emanating from the instructions given. See *Bio-Rad Laboratories, Inc. v. Nicolet Instrument Corp.*, 739 F.2d 604, 615, 222 USPQ 654, 662 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 1038 (1984).

Under Fed. R. Civ. P. 51, the failure of Safety to proffer timely, specific objections to the instructions precludes our consideration of any such objection on appeal absent great injustice. *Roberts v. City of Troy*, 773 F.2d 720, 723 (6th Cir. 1985); *Structural Rubber*, 749 F.2d at 714 & n.3, 223 USPQ at 1269 & n.3. Safety's sole timely objection may have been (assuming it was brought to the court's attention before the jury retired, see *Transcontinental Leasing, Inc. v. Michigan National Bank of Detroit*, 738 F.2d 163, 167 (6th Cir. 1984)) to the instruction stating the irrelevancy of the doctrine of prosecution history estoppel when the jury finds literal

infringement. The district court correctly determined that instruction to have been proper. *See, e.g., Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1571, 219 USPQ 1137, 1141 (Fed. Cir. 1983). There is no merit in Safety's present contention that that instruction misled the jury into not construing the claims in light of the prosecution history, particularly when order instructions told the jury to do precisely that. Instructions must be read in their entirety. *See, e.g., Batesole v. Stratford*, 505 F.2d 804, 809 (6th Cir. 1974); *Grandsky v. Sperry Rand Corp.*, 489 F.2d 502, 503-04 (6th Cir. 1973).

Regarding reason (3), neither Safety nor the district court has indicated how or why the jury might have made different findings or reached different conclusions if Safety or the court had known the jury's verdicts on obviousness would be binding. Nothing of record indicates that either party or the court expected that any jury verdict would be merely "advisory" 1 This court had made clear, *before*] this trial, that jury verdicts in patent cases are binding. *See White v. Jef*

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frey Mining Machinery Co., 723 F.2d 1553, 1558, 220 USPQ 703, 705 (Fed. Cir. 1983). *cert. denied*, 469 U.S. 825 (1984); *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1547, 220 USPQ 193, 197-98 (Fed. Cir. 1983). Having failed to carry its burden before one jury, Safety has shown no such actual prejudice as would warrant a second chance before a second jury and the consequent doubling of the burden on Orthokinetics and the district court.

The case was fully and fairly litigated, the instructions and interrogatories (to which Safety did not object) were jointly prepared and fully adequate to guide the jury in its consideration of the evidence presented. There exists no newly-discovered *material* evidence. A new trial would therefore be unwarranted. The district court's conditional grant of a new trial was an abuse of discretion and must be vacated.

CONCLUSION

The judgment entered in response to those of Safety's motions for JNOV that were granted is reversed. The judgment entered on the jury verdict in light of the denial of Safety's other motions for JNOV is affirmed. The district court's denial of Safety's motion for a new trial on infringement and misuse is affirmed. The district court's conditional grant of a new trial on validity is vacated.

The case is remanded for entry of judgment on the jury's verdicts, for issuance of an appropriate permanent injunction against infringement by Safety, for an accounting, and for such further proceedings not inconsistent with this opinion as the district court may deem necessary.

AFFIRMED IN PART, VACATED IN PART, REVERSED IN PART, AND REMANDED

Appendix

APPENDIX

Question 2

Do you find that Orthokinetics has proved by a preponderance of the evidence that defendant, Safety Travel Chairs, Inc., has directly infringed the following claims of the ['586] patent by sale of Safety TranSporter Chair Models with adjustable scoliosis pads? Please answer: "proved" or "not proved" as to each claim:

Claim 5 " *Proved* "

Claim 6 " *Proved* "

Question 5

Do you find that Orthokinetics has proved by a preponderance of the evidence that the defendant, Clarke Chipman,

is personally liable for direct infringement of the ['586] patent?

Please answer: "Proved" or "not proved":

" *Proved* "

Question 24

Do you find that Orthokinetics has proved by a preponderance of the evidence that the infringement of the ['867] patent by any of the following defendants was willful?

Please answer: "proved" or "not proved":

Safety " *Proved* "

Entron " *Proved* "

William Cole " *Proved* "

Clark Chipman " *Proved* "

Question 31

Have Safety *et al.* proved by clear and convincing evidence that the ['586] patent is invalid because the subject matter of claims 5 and 6 was publicly used or offered for sale more than one year before the December 4, 1972 filing of the ['586] patent application?

Please answer: "proved" or "not proved":

" *Not proved* "

Question 40

Do you find that Safety *et al.* have proved by clear and convincing evidence that the ['867] patent is invalid because the differences, if any, between the prior art and the claimed subject matter, taken as a whole, would not have been obvious to one of ordinary skill in the art the time the claimed invention was made?

Please answer: "proved" or "not proved" as to each claim of the ['867] patent:

Claim 1 " *Not proved* "

Claim 2 " *Not proved* "

Claim 3 " *Not proved* "

Claim 4 " *Not proved* "

Claim 5 " *Not proved* "

Footnotes

Footnote 1. Nor is there any indication in the record that the jury was told that it would be serving in merely an "advisory" capacity. That jurors are unlikely to appreciate the taking of weeks out of their lives, only to have the result of their close attention and deliberations treated as merely "advisory" may account for the extreme rarity of use of advisory juries under Fed. R. Civ. P. 39(c).

- End of Case -

Shatterproof Glass Corporation v. Libbey Owens Ford Company et al.

(CA FC)

225 USPQ 634

Decided Mar. 29, 1985

Nos. 84-853 and 84-883

U.S. Court of Appeals Federal Circuit

Headnotes

PATENTS

1. Use and sale -- Sale (§ 69.8)

Reasonable jury could have concluded that apparatus and method of claims were not functional by critical date so that "on sale" bar was not satisfied, even though orders were placed before critical date.

Particular patents -- Glass Products

3,904,506, Carmichael, Chambers, and Wan, Apparatus for Continuous Production of Sputter-Coated Glass Products, holding of validity and infringement of claims 1,8,10, and 11 affirmed.

3,925,182, Carmichael, Chambers, and Wan, Method for Continuous Production of Sputter-Coated Glass Products, holding of validity and infringement of claims 1, 3, 4, and 8 affirmed.

Case History and Disposition:

Appeal from District Court for the Eastern District of North Carolina, Britt, J.

Action by Shatterproof Glass Corporation, against Libbey-Owens Ford Company, and Leybold-Heraeus GmbH, for patent infringement. From judgment for plaintiff, in part, both parties appeal. Affirmed.

Attorneys:

William J. Schramm, and Burton, Parker & Schramm, and Burton, Parker & Schramm,

P.C., both of Mount Clemens, Mich. (John E. Nemazi, Mount Clements, Mich., on the brief) for plaintiff.

John E. Lynch, and Felfe & Lynch, both of New York, N.Y. (Alfred H. Hemingway, Jr., New York, N.Y., on the brief) for defendants.

Judge:

Before Smith, Circuit Judge, Cowen, Senior Circuit Judge, and Newman, Circuit Judge.

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Opinion Text

Opinion By:

Newman, Circuit Judge.

Libbey-Owens Ford Company and Leybold-Heraeus GmbH appeal from denials of their motions for judgment notwithstanding the verdict (n.o.v.) and for a new trial, and from other rulings related to the issue. The United States District Court for the Eastern District of North Carolina, Judge W. Earl Britt presiding, entered judgment in favor of Shatterproof Glass Corporation on jury verdicts that claims 1, 8, 10, and 11 of U.S. Patent No. 3,904,506 (the Apparatus patent) and claims 1, 3, 4, and 8 of U.S. Patent No. 3,925,182 (the Method patent) are valid and are infringed by operation of a Libbey-Owens Ford manufacturing plant located in Clinton, North Carolina. The jury also found that Leybold-Heraeus' provision of equipment to that plant constituted inducement to infringe or contributory infringement of the claims. The jury assessed damages in the amount of \$2,826,793, and upon motion the court granted Shatterproof \$464,000 in prejudgment interest. The court denied Shatterproof's request for injunction and granted Libbey-Owens Ford a compulsory license to permit future practice under the Apparatus and Method patents at a royalty rate of 5%, from which rate appellants appeal.

Shatterproof cross-appeals from the denial of its requests for treble damages and for attorney fees.

Background

The patents at issue relate to "sputter coating" of glass sheets. The technique of sputter coating has long been known in scientific principle: in essence, a solid piece of metal which will form the coating serves as cathode in a vacuum chamber containing the substrate to be coated; an inert gas such as argon is ionized in the chamber, whereby it bombards the metal cathode and knocks off charged metal atoms which deposit to form a film on the substrate.

The two patents in suit describe and claim a multi-step method and apparatus which, according to the record, provided a commercially feasible way of continuously coating large glass sheets such as architectural panels, to form a uniform metallic film of controlled thickness, free of unacceptable defects such as pinholes and irregularities.

Not all of the patent claims were asserted in this action. Of asserted Apparatus patent claims 1, 8, 10, and 11, claim 11 describes some of the multiple components, with respect particularly to the coating chamber:

11. Apparatus for continuous production of sputter-coated glass sheets and the like, which comprises:
 - a. a coating chamber having entry and exit openings,
 - b. a platen having a horizontal upper surface for supporting a sheet to be coated in a horizontal

position,

c. conveyor means for supporting the platen and sheet in a horizontally disposed position and for passing them into the coating chamber through the entry opening and discharging them through the exit opening,

d. means for sealing the entry and exit openings of the coating chamber when the platen and sheet are supported therein,

e. means connected to the coating chamber for controlling the pressure therein,

f. sputter-coating means mounted in the upper portion of said chamber for depositing a continuous film of a selected coating material on the upper surface of the sheet as it moves through said chamber, and

g. means actuated in response to movement of the platen for selectively opening and then closing the means for sealing the entry and exit openings of the coating chamber.

Apparatus patent claims 1, 8, and 10 variously include additional components, such as entrance and discharge chambers in line with the coating chamber and independent control means for the chambers; means to maintain an inert gas atmosphere in the coating chamber; sealing means at the entry and exit ends of the entrance and discharge chambers with means to open and close in timed relation to the platen movement; heating means and glow discharge means in the coating chamber; control means responsive to platen movement through the coating chamber; a rectangular cathode to which a sheet of coating material is secured; and means for circulating a coolant through a chamber provided for the cathode.

Method patent claims 1, 3, 4, and 8 were asserted. The broadest of these is claim 1:

1. A method for the production of sputter-coated glass sheets which comprises:

a. freely supporting a glass sheet to be coated in a horizontal position on the upper substantially continuous surface of a support platen,

b. freely supporting said platen and glass sheet horizontally upon a conveyor means,

c. conveying the platen and sheet horizontally into a coating chamber,

d. maintaining a predetermined pressure in said coating chamber,

e. sputter-coating a continuous film of a selected coating material on the upper sur

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face of said sheet when supported in the coating chamber, and

f. removing the platen and coated sheet from said chamber.

Method claims 3, 4, and 8 further describe, inter alia, sputter-coating with a plurality of cathodes connected to individual power sources and with the power levels independently controlled by movement of the platen; the use of three successive chambers; sealing the coating chamber from adjacent chambers; maintaining an inert gas atmosphere; sputter coating the glass sheet while it is moving; and using movement of the platen to establish communication between the coating chamber and adjacent chambers while maintaining the pressure in the coating chamber.

Both patents were based on a common application filed on September 25, 1973, which was a continuation-in-part of an application filed on November 13, 1972, which continued an application filed on September 8, 1970. The three named inventors, D.C. Carmichael, D.L. Chambers, and C.T. Wan, were employees of Battelle Memorial Institute, a contract research institute retained by Shatterproof, a glass manufacturer, for the purpose of developing a process for coating glass with thin metallic films.

Shatterproof sued Libbey-Owens Ford on November 17, 1981, alleging infringement of the Apparatus and Method patents at the plant in Clinton, North Carolina (the Clinton Coater). Shatterproof later amended its complaint to include Leybold-Heraeus GmbH (LH) and Leybold-Heraeus Vacuum Systems, Inc. (LHVS) as defendants; the amended complaint was eventually dismissed as to LHVS. (We shall refer to the appellants

collectively as LOF, except when necessary to distinguish between them.) Both sides requested a jury trial.

The complaint was further amended, by stipulation, to add the count of infringement of Shatterproof's U.S. Patent No. 3,826,728 (the Coating patent). Before trial, after a series of motions and orders, the district court granted Shatterproof's motion to dismiss with prejudice as to the Coating patent. LOF agreed to the dismissal, and now requests attorney fees with respect to the Coating patent.

The jury trial occupied three weeks. The jury returned verdicts that each of the asserted claims of the Method and Apparatus patents were valid and infringed and awarded Shatterproof \$2,826,793 in damages.

Issues

1. Whether the district court erred in denying LOF's motion for judgment notwithstanding the verdict.
2. Whether the district court abused its discretion in denying LOF's motion for a new trial.
3. Whether the district court erred in denying LOF's motions concerning the amount of damages and the license royalty.
4. Whether the district court abused its discretion in denying Shatterproof's requests for treble damages and attorney fees, and in denying LOF's request for attorney fees relating to the Coating patent.

Patent Validity

LOF challenges the jury's holding that the claims in suit of the Apparatus and Method patents are valid, and argues on appeal that both patents are invalid under 35 U.S.C. §102 and §103; that both patents are invalid due to violation of the "on sale" provision of 35 U.S.C. §102(b); that both patents are invalid for failure to name the correct inventors; and that both patents are invalid for claim indefiniteness in violation of 35 U.S.C. §112. Errors are assigned to the jury instructions and to the trial judge's management of pre-trial and trial procedures, pertinent to the asserted invalidity of the patents.

In deciding a duly filed motion for judgment n.o.v. upon a jury's determination that a patent is valid (i.e. has not been proven invalid), the district court must determine, without substituting its views for those of the jury when resolving conflicts in the evidence, whether in light of the evidence reasonable persons could have found the facts necessary to support the jury's verdict, or whether the facts properly found can in law support the verdict. *Weinar v. Rollform Inc.*, 744 F.2d 797, 805, 223 USPQ 369, 373 (Fed. Cir. 1984).

In reviewing a decision denying a motion for judgment n.o.v. we do not approach the issues as if there had been no trial. We review the evidence as a whole, and ascertain whether the verdict is in accordance with law, and whether there was substantial evidence in support of the jury's verdict. In the case at bar there was conflicting testimony and argument on essentially all material facts, and due deference must be given to the opportunity of jury and trial judge to have observed the witnesses and viewed the exhibits over a lengthy trial. *Railroad Dynamics, Inc. v. A. Stucki Co.*, 727 F.2d 1506, 1513, 220 USPQ 929, 936 (Fed. Cir.), cert. denied, 53 U.S.L.W. 3240, 224 USPQ 520 (1984).

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A. Anticipation

Anticipation under 35 U.S.C. §102 requires that there be an identity of invention, which presents a question of fact for the jury. LOF produced some twenty-one references at trial in support of invalidity due to anticipation or obviousness, and concentrates on eight of these on this appeal: Colbert et al. U.S. Patent No. 2,676,117; a 1964 Heraeus catalog; an article by Shroder entitled "Large-Area Coating of Glass for Modification of its Transmittance," published in 39 *Glastechnische Berichte* 156-158 (1966); Small et al. U.S. Patent No. 4,015,558; an IBM Technical Disclosure Bulletin by Byrne et al. entitled "Continuous Parallel-Plate RF Sputtering System," Vol. 13, No. 4 (September 1970) 1034-35; a Leybold-Heraeus publication entitled "RF and DC Sputtering Plants Using the Diode Principle" (April 12, 1971); Hammond et al. U.S. Patent No. 3,584,847; and a document entitled

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"Contributions of Leybold-Heraeus to the Second International Electron Beam Seminar, June 26-29, 1972, Frankfurt, Germany."

There was extensive testimony at trial explaining the references and applying them to the claims. The jury was correctly instructed that

If one prior art reference completely embodies the same process or product as any claim of the patent in suit, the process or product recited by that claim is said to be 'anticipated' by the prior art and the claim is therefore invalid under §102 for want of novelty.

LOF raised no objection to this instruction.¹ From the jury's verdict of patent validity, it is presumed that the jury found that no prior art reference completely embodied the process or apparatus of the claims in suit. *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 894, 221 USPQ 669, 673-74 (Fed. Cir.), cert. denied, 105 S.Ct. 187 (1984). We have reviewed the references and the evidence, and conclude that a reasonable jury could have found that none of the references anticipates the claimed inventions.

B. Obviousness

Both sides explained to the jury that a determination under 35 U.S.C. §103 requires inquiries into the scope and content of the prior art, the level of ordinary skill in the art, and the differences between the claimed inventions and the prior art. Witnesses explained the references, and there was extensive testimony and argument relating to the factual inquiries pertinent to obviousness.

Concentrating on the eight references ante, LOF argues that the verdict was based on erroneous views as to which references constitute prior art. At trial Shatterproof had argued to the jury that those references directed toward sputter coating of silicon wafers for electronics uses were not "analogous" art. Shatterproof presented testimony that the problems associated with sputtering onto window glass were greatly different from those encountered in the electronics industry, and that large cathodes and vacuum chambers presented the inventors with major problems not previously encountered. It was pointed out to the jury that while a pinhole on a silicon wafer could ruin one or two circuits which could be discarded, the remaining thousand or more circuits per wafer would be unaffected; but a single pinhole in a sheet of window glass would render the product unusable. There was testimony that, since the electronics industry used the metallic film as an electrical conductor, optical characteristics of reflection and transparency were not a relevant concern; and that the film on silicon wafers was at least twenty times the thickness of optical coatings.

The trial judge's instructions to the jury on the factual inquiry of which references were pertinent to a determination of obviousness included the following:

In addition, if you find that a field of art is analogous to the art with which the patents are concerned then you may consider that field as prior art. A field of art is analogous if one seeking the solution to a problem in one art would be likely to seek the solution by referring to the other art.

To decide whether prior art in an analogous field is pertinent, you should consider the problems confronting a person skilled in sputter coating architectural glass and decide whether such a person would have looked to art in other fields of endeavor to solve those problems.

It is a question of fact for the jury to decide whether another field of art is sufficiently analogous to the art with which each patent is concerned that a person with a problem in the latter field would look to the former field to adopt a solution to the problem devised there.

LOF objects that this instruction was erroneous, and caused the jury to ignore the references relating to coating of silicon wafers for electronics purposes. The instruction left to the jury the factual determination of analo

gous art, which was correctly defined in the charge. The jury was correctly advised to look first to the nature of the problem confronting the inventor. *Orthopedic Equipment Co. v United States*, 702 F.2d 1004, 1009, 217

USPQ 193, 196 (Fed. Cir. 1983). If the reference is not within the field of the inventor's endeavor, one looks at whether the field of the reference is reasonably pertinent to the problem the inventor is trying to solve. *Union Carbide Corp. v. American Can Co.*, 724 F.2d 1567, 1572, 200 USPQ 584, 588 (Fed. Cir. 1984).

LOF asks on appeal that we review and give controlling weight as prior art to certain German documents relating to Leybold-Heraeus' operations. The record on these documents is thin, apparently because of the exclusion of a witness for violation of a sequestration order. The provenance, status as prior art, and weight to be given these documents was before the jury and the trial judge. We may not base a decision on evidence that was properly excluded at trial. Nothing in our recent decision in *Quaker City Gear Works v. Skil Corp.*, 747 F.2d 1446, 223 USPQ 1161 (Fed. Cir. 1984), cited by LOF under Rule 16 of this court, is to the contrary.

The jury was presented with conflicting testimony with respect to the factual inquiries into the level of ordinary skill in the art and the differences between the claimed inventions and the prior art. LOF had pointed out to the jury many asserted similarities between the claimed inventions and the prior art; Shatterproof adduced evidence that the references fail to teach how to make a continuous, thin film having reflective properties, fail to teach glass orientation relative to the cathode, and are otherwise distinguished. Conflicting expert opinion was presented on these points, and also concerning whether the teachings found in various references could be combined.

LOF also assigns error to the failure of the judge to instruct the jury concerning "secondary considerations" of obviousness. LOF testified that the Shatterproof inventions were unsuccessful and unprofitable, while Shatterproof presented testimony that the technological approach taken by Shatterproof was "very revolutionary" and produced millions of dollars of sales for itself as well as for LOF from operation of the Clinton Coater. The pertinence of each side's view of these considerations was explained at trial, and although we do not generalize to all cases, in this case we find no fatal flaw in the jury instructions on section 103. The lengthy written instructions represented a balanced approach, focusing the jury's attention on the controlling issues in the context of the evidence and facts of this case, and we do not consider the absence of a specific instruction on the "secondary considerations" to have been prejudicial to LOF, whose burden of proving invalidity could not have been affected by the jury's evaluation of evidence not necessary to its conclusion that the patent is valid.

In the face of conflicting evidence, testimony, expert opinion, and argument, the jury found each of the four Apparatus and four Method claims valid. As this court said in *Railroad Dynamics*, 727 F.2d at 1514, 220 USPQ at 937, "[t]hat there may have been trial evidence favorable to both sides * * * is simply irrelevant." We do not determine whether a jury could have reached a different verdict, but whether there is substantial evidence for the verdict that it reached. *Lavender v. Kurn*, 327 U.S. 645, 653 (1946). Our review of the record shows that there was substantial evidence on which a reasonable jury could have found facts consistent with its conclusion of non-obviousness. We do not find reversible error in the court's denial of LOF's motion for judgment n.o.v. on this issue.

C. The "On Sale" Bar

LOF asserts that patentability is barred because the products of the patented Method and Apparatus were "on sale," within the terms of 35 U.S.C. § 102(b), more than one year before the applicable filing date of September 25, 1973. There were prior patent applications on file as early as September 8, 1970, and the jury was instructed concerning the various filings and their significance, including those issues relating to the effect of inventorship on the right to priority of earlier filings. Although Shatterproof continues to argue its entitlement to earlier filing dates, the evidence and argument were concentrated on a critical date of September 25, 1972, which is the date most favorable to LOF's position.

LOF raises two issues: first, that Shatterproof's offers of sale after its earliest filings but prior to September 25, 1972 were sufficient to incur the section 102(b) bar; and second, that even if these offers were insufficient, Shatterproof's activities in testing its process and apparatus prior to September 25, 1972 were sufficient to incur the bar.

The record shows that the research for Shatterproof on metal coating of glass started at Battelle in early 1969,

that sputter coating became the technique of choice during 1970, and that by February 19, 1971 Shatterproof decided to proceed with sputter coating com

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mercially and authorized Battelle to develop a manufacturing process and to start to design a manufacturing plant. While this development and design work was proceeding, by October 1971 Shatterproof began to solicit orders for architectural glass panels and other coated glass products; Shatterproof testified that architectural glass for construction projects is normally ordered months or years in advance. It is uncontroverted that orders were placed before September 25, 1972.

In soliciting orders during this early period, samples of sputter-coated glass were shown to potential customers; it was explained at trial that the samples were made by Battelle using the "bell jar" technique of the prior art. Although LOF now argues that the samples were too big to fit in a bell jar, LOF adduced no evidence that any samples were produced following the claims of the Method or Apparatus patents, or that the claimed method or apparatus was disclosed to potential customers.

In the summer of 1972 Shatterproof was completing construction and assembly of the manufacturing plant, and a few weeks before the critical date Shatterproof started to test the apparatus. The product of these first tests was described by Shatterproof's vice-president as "frightening," and by inventor Wan as "useless." Instead of the intended silvery transmissive reflective glass, the product was black, opaque, and contained pinholes. The unacceptability was not controverted, although LOF suggested to the jury that it was usable as a cocktail table top; Shatterproof said it was worth less after coating than before.

LOF argued that these tests closed the "on sale" circle which was opened with the solicitation and acceptance of orders, since most of the segments of the plant worked as intended; and that because the plant did work as intended, albeit after the critical date, the earlier tests were merely routine adjustments and therefore adequate to trigger the "on sale" bar. Shatterproof countered with testimony that the tests were not routine, that the technology was unproven, and that it was unknown at the time how long it would take for the plant to start up and operate. Shatterproof witnesses testified that production did not start until after September 25, 1972. LOF challenged the production dates and the supporting evidence, pointed out to the jury asserted gaps in the documentary evidence, and vigorously cross-examined the witnesses. LOF raised questions of credibility as well as interpretation of the evidence.

Although application of section 102(b) is a matter of law, there were several disputed questions of fact on which the legal conclusion rests. The trial judge presented the "on sale" issue to the jury with the following instructions:

Also, any completed machine or product actually produced by a new process which is placed "on sale" is a part of the prior art. A product and the method or machine for making the product are considered to be in "public use" or "on sale" if the completed product is commercially exploited in any way. An actual, consummated sale is not necessary; an offer for sale, a solicitation of orders, advertisements, or promotional activity are sufficient so long as it is of a completed invention that has been shown to be commercially useful for the purpose intended.

It is against public policy to allow an inventor to commercially exploit his invention before applying for a patent because this has the effect of extending the term of the patent as fixed by Congress.

You must determine whether the defendants have established by clear and convincing evidence that any such offers for sale were made more than one year prior to the effective filing date. If you find that such offers were made, then the burden shifts to Shatterproof to prove that the offers did not involve functional machines and processes. Even one offer for sale of a completed invention more than one year prior to the effective filing date of the patents in suit will render invalid the Apparatus and Method patents.

LOF assigns legal error to these instructions, and argues that the mere offer to sell is sufficient, whether or not "a completed invention * * * has been shown to be commercially useful for the purpose intended," and whether or not "functional machines and processes" are involved. LOF also argues that the factual question of whether the Shatterproof machines and processes were functional before the critical date must be decided in LOF's favor.

The clear weight of authority is that a bare offer to sell does not ipso facto satisfy the "on sale" bar, and that the surrounding circumstances must be considered. In *Barnag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.*, 731 F.2d 831, 221 USPQ 561 (Fed. Cir. 1984) the bar was found where the offer to sell was accompanied by a "makeshift" model embodying all aspects of the patented product. In *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144, 1151, 219 USPQ 13, 18 (Fed. Cir. 1983), an offer to sell was accompanied by samples of the product made by the patented method; the court held that it did not matter that the product was not in mass production, where

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there was "crucial testimony that every step of the claimed method was followed." In *In re Dybel*, 524 F.2d 1393, 1400, 187 USPQ 593, 598 (CCPA 1975), where as here a sales contract had been entered into before the critical date, the court held that "for an invention of the type involved here to be 'on sale,' it must be complete at least to such an extent that the purchaser knows how it will perform." As stated in *General Electric Co. v. United States*, 654 F.2d 55, 60 n.8, 211 USPQ 867, 872 n.8 (Ct. Cl. 1981), the invention must have been "sufficiently tested to demonstrate that it will work for its intended purpose."

The district court explained to the jury, in the context of the specific situation before them, that the section 102 bar applies to "a completed invention that has been shown to be commercially useful for the purpose intended." The controversy concerning the timing and significance and completion of the test and start-up activities had been presented to trial judge and jury, in extensive and contested detail. The jury instruction focused attention on the factual question critical to this case, that is, whether the offers of sale involved "functional machines and processes." As observed in *Structural Rubber Products Co. v. Park Rubber Co.*, 749 F.2d 707, 723, 223 USPQ 1264, 1276 (Fed. Cir. 1984), "the duty of a trial court in any jury trial is to give instructions which are meaningful, not in terms of some abstract case, but which can be understood and given effect by the jury once it resolves the issues of fact which are in dispute." The determination of when the Shatterproof apparatus and process first functioned for its intended purpose depended on an evaluation of the evidence and the testimony. LOF invites us to draw adverse inferences from certain evidence or its lack; indeed, we observe that the jury was similarly invited. It is not our province to reweigh the evidence, nor to decide facts which depend on credibility of witnesses.

[1] Our review of the entire record shows that a reasonable jury could have found that the apparatus and method of the claims were not functional by September 25, 1972, and that the "on sale" bar was not satisfied. We discern no error in the court's refusal to grant judgment n.o.v. on this point.

D. Inventorship

LOF asserts error in the court's treatment of LOF's position that both patents are invalid or unenforceable for failure to name the correct inventors. LOF asserts that the named inventors did not themselves invent the substrate holder, the poppet valves, or the conveyor design, but that these contributions originated with Shatterproof engineers or with equipment manufacturers. LOF charges Shatterproof with inequitable conduct and patent unenforceability based on Shatterproof's failure to disclaim certain claims of the Apparatus patent after this challenge was raised. LOF also contends that the trial court erred in refusing to allow testimony or to charge the jury that 35 U.S.C. § 288, which provides for the recovery of costs upon a successful infringement action, does not apply to the Apparatus patent due to this asserted deceptive intent in the designation of inventorship.

There was extensive testimony and argument on this issue at trial. Shatterproof pointed out that the claims in suit recite no specific conveyor design; they recite only a "conveyor means." LOF asserted that the conveyor was

designed, built, and installed by Shatterproof. Inventor Chambers testified to the effect that the basic system had been designed at Battelle before vendors were selected for various components of the design, that Shatterproof engineers had designed the conveyor from several alternatives provided by the named inventors and with their approval, and that the idea of using a substrate holder originated with the Battelle inventors.

As for the poppet valves, they are mentioned only in Apparatus patent claims 13 and 14, neither of which was asserted by Shatterproof nor brought into the case by LOF. LOF now argues that all claims were at issue by virtue of the complaint and answer, but LOF did not raise this point in objection to the court's request for jury verdicts limited to four specified claims of each patent, nor apparently at the pretrial proceedings at which Shatterproof said that only four claims of each patent would be asserted.

The issue of inventorship of all the claims of both patents was pursued in examination of each of the named inventors and others. LOF argues that there are inconsistencies in the testimony. To the extent that conflicting viewpoints were presented, this was within the province of the jury. The trial court instructed the jury as follows:

You have heard defendants contend that others were involved in the invention of the claimed apparatus and method and that those others are not named in the patent applications as the inventors * * * * You must determine whether the named inventors were the actual and only inventors of the subject matter claimed in the apparatus and method patents. If not, you must find that the Shatterproof patents are invalid.

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Although this instruction is an over-simplification of the law in that it does not recognize the possibility of correcting errors in inventorship, any error in this instruction was harmless to LOF's position.

Our review shows that there was substantial evidence on which a reasonable jury could have found that the inventors were correctly named. An inventor "may use the services, ideas, and aid of others in the process of perfecting his invention without losing his right to a patent." Hobbs, 451 F.2d at 864, 171 USPQ at 724. Nor do we consider that it was incumbent upon Shatterproof to disclaim, during the course of the litigation, claims subject to this controverted inventorship challenge.

E. Indefiniteness

LOF argues that the Method and Apparatus patent claims are indefinite and thus invalid for failure to comply with the second paragraph of 35 U.S.C. § 112, in that they do not recite the size of the glass sheets or the quantity or quality of the coating, and that the words "freely supporting" in the method claims are vague and indefinite.

There was testimony and expert opinion at trial on the question of whether the claims adequately defined the invention. The specifications of both patents state that the thickness of the coating is in the range of 50 to 400 angstroms, and that a thicker coating would impair the transmission of visible light and thinner coatings would not significantly reduce solar radiation transmittance. Concerning the size of the glass sheets, the specifications state that "the products of primary concern are architectural glass, vehicle windows, and oven windows * * * *". LOF's assertions that the claims are vague and indefinite in the term "freely supported" was also controverted by reference to the specifications. The amount of detail required to be included in claims depends on the particular invention and the prior art, and is not to be viewed in the abstract but in conjunction with whether the specification is in compliance with the first paragraph of section 112: "If the claims, read in the light of the specifications, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more." *Georgia-Pacific Corp. v. United States Plywood Corp.*, 258 F.2d 124, 136, 118 USPQ 122, 132 (2d Cir.), cert. denied, 358 U.S. 884, 119 USPQ 501 (1958). Compliance with the second paragraph of section 112 is generally a question of law, and we observe no failure of compliance on the record before us, and no basis on section 112 grounds for disturbing the jury's verdict.

Infringement

Shatterproof had asserted that the Process and Apparatus claims were infringed literally and by application of the doctrine of equivalents. LOF argues on appeal that the Clinton Coater lacks several of the claimed elements or steps, and that its components are not equivalents of those in the Apparatus and Method Patents.

At trial, Shatterproof witnesses applied each element of each of its claims, or asserted equivalents, to corresponding elements in the Clinton Coater. With respect to Apparatus claim 11, for example, Shatterproof's expert witness Mr. Dority testified that he "saw the glass sheets entering continuously from one end and coming out the other end coated." Concerning element a, he stated that there was "a coating chamber right there with an entrance opening and an exit opening." The Clinton Coater utilized a frame with a series of raised rubber buttons on slats disposed along the length of the frame; both Mr. Naylor, an LOF employee in charge of the filming operation at Clinton, and Mr. Dority testified that the glass "just rests" on the frame of rubber buttons. Mr. Dority said that "the glass rested right on top of that frame in a horizontal position" and equated the term "platen," as described in claim element b, with LOF's series of spaced rubber buttons. Mr. Warren, LOF's manager of quality control, testified that the Clinton Coater utilized rollers to transport the frame. Dority equated these rollers with the conveyor means in element c, and stated that the rollers propelled the frame into the entrance chamber and out through the exit chamber. Mr. Warren testified that there were valves between each of the six principal chambers: entrance chamber, glow discharge chamber, initial buffer chamber, sputtering chamber, second buffer chamber, and exit chamber. Mr. Dority testified that he observed all of "the hydraulic cylinders moving to a closed position" with the exception of those surrounding the sputtering chamber. However, there was "no question in my mind the doors were opening and closing," fulfilling the function of element d, because he observed "the lights on the control panel and synchronizing them with the movement of the door." In reference to element e, LOF admitted in response to interrogatories "that the sputter chamber pressure in its Clinton apparatus is controlled and that there is apparatus for the control of each pressure."

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Mr. Warren testified that LOF controlled the pressure in the coating chamber using vacuum pumps. For element f, Mr. Warren testified that the sputtering chamber contained a rectangular cathode, and that a continuous film of the target material was applied to the top of the glass while the glass moved through the sputter chamber. Concerning element g, Mr. Csehi, a chief engineer for LOF, testified that at least one of the parameters that caused the exit door to open was the position of the frame, and that limit switches were used to detect the location of the frame at a particular time. Mr. Dority testified that he had personally viewed the limit switch arms stopping and starting the opening of the chamber doors in response to the movement of the frame. On cross-examination, Mr. Dority stated that it was not possible for something other than frame movement to make the doors open and close.

Similar testimony was adduced for all the claims at issue. The jury viewed detailed claim charts, as well as videotapes and drawings of the Clinton coating operation. It examined exhibits such as the actual frame used at the Clinton facility, and heard opposing experts expound conflicting opinions. LOF challenges the weight of the evidence, and directs our attention to the evidence for noninfringement. LOF's strongest assertions concern the sealing means, the platen, and the inert gas. These were the subject of conflicting testimony of expert witnesses. The lengthy jury instructions included the following:

The "claims" define, in words, the exact boundaries of the invention, and it is only the claims of a patent that can be infringed * * * * Before any of a defendant's processes or products can be said to infringe any claim of a patent, the process or product must come within that claim. That is, the combination of steps or elements that you find recited in the claim must also be found in that defendant's process or product before it can be said to infringe that claim. In this regard, each claim must be separately considered since proof of infringement of any one claim is sufficient to establish infringement of the patent * * * *

Infringement of a dependent claim cannot be found unless you also find that the claim upon which it is

dependent is also infringed.

The doctrines of equivalents and prosecution history estoppel were explained to the jury:

In those cases where each and every step or element in a defendant's process or product does not come within the literal words of the claim, infringement of the patent may nevertheless be found if the defendant's process or product differs from the claim only because of steps or elements that perform substantially the same function in substantially the same way to produce substantially the same results as the steps or elements of the invention set forth in the claims * * * * You may determine equivalency from the expert testimony you have heard, from the documents which have been introduced into evidence, and from the disclosures of the prior art.

In applying that test, known as the doctrine of equivalents, the claims cannot be construed in a manner inconsistent with any limitations which were added during prosecution in the Patent and Trademark Office to render the claims patentable. Also, the plaintiff is prohibited from relying on the doctrine of equivalents if the defendant's process or product is like the prior art.

Both infringement and equivalence are questions of fact. We have reviewed whether substantial evidence supports the jury verdict of infringement. *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1546, 220 USPQ 193, 197 (Fed. Cir. 1983). Viewing the evidence as a whole, we conclude that a reasonable jury could have found the claims of both patents infringed, either literally or under the doctrine of equivalents, by LOF's Clinton Coater. We do not find reversible error in the court's denial of LOF's motions for judgment n.o.v. or a new trial on this issue.

Inequitable Conduct

LOF asserts that the Method and Apparatus patents are unenforceable because Shatterproof misrepresented the state of the art and failed to make material disclosures to the PTO with regard to the existence of the Colbert et al. and LH Sputter Plant II references. LOF contends that Shatterproof had knowledge of these references prior to and during the prosecution of the applications for the patents in suit, and that failure to disclose their existence was intentional. The jury heard evidence on this issue. LOF's own expert Mr. Manning testified on cross-examination that the Colbert patent was not the best prior art. There was conflicting testimony about the LH Sputter Plant II. The jury was correctly charged as to the law on enforceability, fraud, and misrepresentation, and that clear and convincing evidence was needed for a finding of intentional misrepresentation or withholding of a material fact from the PTO. We find substantial basis in the record for a reasonable jury to have found the patents not unenforceable on this basis.

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LOF's Motion for a New Trial

LOF appeals from the district court's denial of its motions to set aside the verdict and grant a new trial, and asserts that the court erred in charging the jury, as well as in excluding evidence and issues. If prejudicial error occurred, or if the verdict is against the clear weight of the evidence, as an alternative to judgment n.o.v. a new trial may be granted, in the discretion of the trial judge. On review, we determine whether that discretion has been abused. *Fairmont Glass Works v. Cub Fork Coal Co.*, 287 U.S. 474 (1933).

In reviewing the court's denial of new trial, we review the jury instructions as a whole to determine whether clear error occurred, such that the jury was misled. *Railroad Dynamics*, 727 F.2d at 1512, 1517, 220 USPQ 929 at 934, 939 (Fed. Cir. 1984). See Fed.R. Civ. P. 61. LOF challenges the correctness of the instructions on obviousness, duties of candor and disclosure, reduction to practice, claim indefiniteness, LH publications as prior art, prior knowledge as prior art, and definition of the relevant art field. Most of these instructions have been discussed ante, and we discern no fundamental error in their substance, nor any abuse of the trial court's discretion in its management of this complex trial.

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LOF also maintains that it was error for the trial court to decline to present special interrogatories to the jury on certain factual inquiries. As this court stated in *Structural Rubber Products Co.*, 749 F.2d at 720, 223 USPQ at 1274:

[I]t must be left to the sound discretion of the trial court what form of verdict to request of a jury. *Weinar v. Rollform, Inc.*, Nos. 84-515/526, slip op. at 35, 223 USPQ 369 (Fed. Cir. Sept. 17, 1984). Thus, we have held that a trial court may, with proper instructions, present a patent case to a jury for a general verdict encompassing all of the issues of validity and infringement, *Railroad Dynamics*, 727 F.2d at 1514-15, 220 USPQ at 937-38, or may ask for a general answer on one or more specific legal issues, such as obviousness, a practice not specifically provided for in the Federal Rules. *Id.* at 1516, 220 USPQ at 938-39.

We do not find prejudicial error in the instructions, nor do we find sufficient basis for overturning the decision or retrying the case.

LOF contends that pretrial procedures uncovered "intimations" of a grudge on Shatterproof's part against LOF, and that the exclusion of this alleged impeachment evidence was prejudicial error, supporting a new trial. Error may not be predicated on a ruling which excludes evidence unless a substantial right of the party is affected, and LOF has not so demonstrated. We find no abuse of the trial court's discretion in excluding this evidence.

LOF also asserts that the court's management of discovery was to LOF's detriment. Shatterproof had taken the position that certain documents were nondiscoverable; the trial judge, after in camera inspection, ordered Shatterproof to produce several documents, but found others to be duplicates or protected from discovery by the attorney-client privilege or work product exemption. LOF maintains that its motion to compel production of documents demonstrated a prima facie case of inequitable conduct before the PTO, which vitiates Shatterproof's attorney-client privilege and work product exemption. The trial judge made no such finding, and LOF has not persuaded us of a clear abuse of discretion in the trial judge's management of discovery. Fed.R. Civ. P. 26.

The Coating Patent

LOF asserts that the trial court erred in denying LOF's summary judgment motion on U.S. Patent No. 3,826,728, the Coating patent, and in refusing LOF's request for attorneys' fees since the Coating patent count was dismissed with prejudice on Shatterproof's motion. We see no abuse of discretion in this action, *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1559, 220 USPQ 303, 317 (Fed. Cir. 1983), cert. denied, 105 S. Ct. 172 (1984), particularly since the record shows that the Coating patent was added to this action by stipulation and was dismissed with LOF's consent.

LOF argues further that the Method and Apparatus patents are invalid because the Coating patent was procured through inequitable conduct, and argues other demerits of the Coating patent. But these issues were not before the jury, nor did LOF request jury instructions concerning the Coating patent. LOF waived its opportunity to litigate the Coating patent in this trial when it stipulated, without reservation, to the dismissal order.

Damages

LOF contends that the jury's award of damages was speculative and unsupported by substantial evidence. LOF points out that Shatterproof's witness Cusick testified that four percent of "net" sales would be a reasonable royalty rate, whereas the amount requested by Shatterproof and awarded by the jury (\$2,826,743) was five percent of LOF's gross sales. Shatterproof contends that the

award was indeed reasonable, observing that Mr. Cusick testified that "about four percent of total sales" would be reasonable if accompanied by an additional down payment of \$300,000 to \$400,000.

The instructions to the jury on damages were lengthy, and referred to the provision of 35 U.S.C. §285 that a patent owner is entitled to no less than a reasonable royalty. LOF did not and does not object to this principle, but

does object that the measure of 5% of gross sales rather than 4% of net sales was not supported by evidence.

The court denied LOF's motions for judgment n.o.v. or a new trial on this point. We have reviewed the record as a whole, and conclude that the jury rendered a reasonable decision. As noted in *Weinar*, 744 F.2d at 808, 223 USPQ at 375, "[j]ury damage awards, unless the product of passion and prejudice, are not easily overturned or modified on appeal." The record before us does not support the conclusion that the jury's damage award was speculative or unreasonable, or unsupported by substantial evidence.

LOF also criticizes the court-ordered 5% royalty for the compulsory patent license for continuing operations. This royalty is based on sales, measured as defined in the order, and we do not find the amount of the royalty or its method of measurement to be clearly erroneous or an abuse of judicial discretion.

Treble Damages and Attorney Fees

Shatterproof cross-appeals from the denial of its motion to treble the amount of damages awarded, pursuant to 35 U.S.C. §284, and its motion to award attorney fees in accordance with 35 U.S.C. §285. Jury trial on these issues had been waived.

Shatterproof contends that the record conclusively established willful infringement as a matter of law, based on LOF's admission that it was aware of both of the patents in suit prior to sale of any infringing product, and the admission that LOF did not seek the opinion of patent counsel before construction of the Clinton Coater. Shatterproof argues that LOF decided to risk liability for infringement because of the projected high profit margin, and because Leybold-Heraeus assertedly agreed to hold Libby-Owens Ford "harmless" if charged with infringement. Shatterproof refers to *Rosemount, Inc. v. Beckman Instruments, Inc.*, 727 F.2d 1540, 221 USPQ 1 (Fed. Cir. 1984) which upheld the award of treble damages and attorney fees on a showing of willful infringement.

LOF responds that its awareness of the patents was only "technical," that its patent staff routinely monitors patent activity in all areas of glass technology, but that its key people on the Clinton Coater project were not aware of the patents until this litigation arose. LOF contends that it did not have actual notice of the Shatterproof patents, as required in *Underwater Devices Inc. v. Morrison-Knudsen Co., Inc.*, 717 F.2d 1380, 219 USPQ 569 (Fed. Cir. 1983). LOF also challenges Shatterproof's characterization of the LH contract provision as a "hold harmless" undertaking.

Willfulness of infringement is a question of fact. The issue was comprehensively argued before the district court. The trial judge denied without opinion Shatterproof's motion to increase the damage award, and we do not have his detailed views on this question. The jurisprudence, however, uniformly requires clear and convincing evidence in support of increased damages. A record devoid of opinions of counsel and silent on LOF's reaction to the existence of the Shatterproof patents may indeed lead to negative inferences, and the case for willfulness was dependent on determinations of credibility and motivation which were placed in issue at trial, and which are the province of the trier of fact. While a finding of willful infringement is sufficient to support an award of increased damages, see *Underwater Devices*, 717 F.2d at 1390, 219 USPQ at 577, on the record before us it was neither clear error nor an abuse of the trial court's discretion to deny Shatterproof's motion.

The district court also denied Shatterproof's motion under 35 U.S.C. §285 for attorney fees. Shatterproof contends that misconduct by LOF during litigation justifies such an award. Indeed, each side has criticized the litigation tactics of the other. An award of attorney fees is discretionary with the court, *Hughes v. Novi American, Inc.*, 724 F.2d 122, 124, 220 USPQ 707, 709 (Fed. Cir. 1984), and section 285 requires that such discretion be exercised only upon a finding of exceptional circumstances. *Stevenson v. Sears, Roebuck & Co.*, 713 F.2d 705, 712-13, 218 USPQ 969, 975 (Fed. Cir. 1983). Our review of the record supports the district court's exercise of judicial discretion.

Conclusion

We have fully considered all the issues raised by LOF and by Shatterproof on appeal and cross-appeal, including those not here discussed. The decision of the district court is *affirmed* in every respect.

Affirmed.

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Footnotes

Footnote 1. LOF is thus precluded from asserting error in the instruction on appeal from the denial of its motion for a new trial. Fed.R. Civ. P. 51.

- End of Case -

GEORGIA-PACIFIC CORPORATION v. UNITED STATES PLYWOOD CORPORATION

(CA 2)

118 USPQ 122

Decided July 1, 1958; as amended September 10, 1958

No. 127

U.S. Court of Appeals Second Circuit

Headnotes

PATENTS

1. Jurisdiction of courts—Declaratory judgment — Actual controversy (§ 43.303)

Patent owner's Weldtex product uses both its D and B patents; patent owner wrote to competitor, referring to latter's imitation of Weldtex, stating that Weldtex is covered by patents which have been recognized by industry for more than 13 years, and threatening action to protect patent rights; no justiciable controversy was created thereby as to B patents since (1) only D patent had been recognized by industry for more than 13 years, (2) there could not have been even a colorable claim that competitor's product infringed B patents, and (3) facts show that there was no intention to charge infringement of B patents.

2. Use and sale—Extent and character of use (§ 69.5)

Plywood was finished article requiring no further experimentation, was commercially exploited, and was used in three buildings; although further exploitation foundered on ineffective public demand, plywood must be considered as part of prior art and not an abandoned experiment.

3. Patentability—Evidence of—Acquiescence in validity (§ 51.453)

Prior user inferentially supports view that his product did not anticipate patented product by his testimony that he sought license under patent and, on its refusal, did not attempt to produce patented product.

4. Patentability — Change — In general (§ 51.251)

Conclusion that patent involves matter of degree rather than change in kind is inevitably a peculiarly personal

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judgment that patented discovery did not require level of intellectual effort and perception which entitles it to statutory protection.

5. Patentability — Invention — In general (§ 51.501)

Patentee cannot arbitrarily select range in known progressive change and maintain patent monopoly on products falling within range on ground that range produces optimum results; such a selection of ranges ordinarily involves merely pedestrian skills.

6. Patentability — Change — In general (§ 51.251)

Benefits incidentally and accidentally accruing in prior art products do not necessarily negate invention in change in degree when purpose is different and results new and useful.

7. Patentability — Invention — Specific cases—In general (§ 51.5091)

If plywood must be physically changed, it can be proper subject of patent.

8. Presumption from patent grant—Weight of (§ 55.9)

Presumption of patent's validity is perhaps too often minimized in courts; expertness and experience in passing upon patents lie primarily in Patent Office and these important factors are only partially offset by greater concentration and additional relevant evidence which can be brought to bear in patent litigation in courts.

9. Patentability — Tests of — In general (§ 51.701)

Restrictive judicial views of inventiveness developed in cases where patents were declared invalid departed from more liberal standards pertaining at a prior time and forced Congressional reinvigoration of standards in 1952 Act.

10. Presumption from patent grant—Patent Office consideration of prior art (§ 55.5)

Presumption of validity is entitled to particular weight when file wrapper discloses careful consideration in Patent Office before issue.

11. Prior adjudication — Infringement suits (§ 56.15)

Considered judgment by district court sustaining patent is entitled to weight by court of appeals of another circuit in action against another infringer.

12. Patentability — Evidence of — Commercial success — Doubtful cases (§ 51.4557)

Substantial commercial success of patented device is important factor in doubtful case.

13. Patentability — Evidence of — Acquiescence in validity (§ 51.453)

Commercial success of patented device must be viewed in light of long-continued public acquiescence in patent's validity, alleged infringer being first producer to litigate fully the patent, and then only 13 years after patent issued; unwillingness in industry to engage in patent litigation can sometimes be explained by limited commercial appeal of device or small size of producing units in industry, but instant device had great success, it was recognized that large profits would be made from its sale, and industry was composed of many relatively large units; also, it is noted that patent owner paid over \$533,000 in royalties to inventor; it is unlikely that firm in competitive industry would commit itself to pay such royalties if there was substantial likelihood that rest of industry could manufacture product free of patent.

14. Construction of specification and claims—By specification and drawings — To save claim (§ 22.257)

Scope of claims should be limited in light of specification if necessary to uphold patent, but rule applies only if claims are ambiguous and it cannot serve to save claims intentionally drafted to obtain monopoly broader than seems justified.

15. Construction of specification and claims — Comparison with other claims (§ 22.40)
Limitations in some claims in a series will not be read into the others.

16. Specification — Sufficiency of disclosure (§ 62.7)

Requirement of precision in 35 U.S.C. 112 serves two primary purposes; those skilled in art must be able to understand and apply teachings of invention, and enterprise and experimentation must not be discouraged by creation of area of uncertainty as to scope of invention; on the other hand, policy of patent statute contemplates granting protection to valid inventions; this policy would be defeated if protection were accorded only to patents capable of precise definition; judicial function requires balancing of these competing considerations in the individual case.

17. Claims — Indefinite — In general (§ 20.551)

Specification — Sufficiency of disclosure (§ 62.7)

Objectionable indefiniteness must be determined by facts in each case, not by reference to abstract rule; if subject matter is such that patentee cannot verbalize invention comprehensibly or is incapable of ascribing reasonable limits to claims, regardless of intrinsic merit, invention cannot be patented; likewise, patentee must draft specification and claims as precisely as subject matter permits, and his failure to do so may result in invalidation of patent; on the other hand, patentable inventions cannot always be described in terms of exact measurements, symbols, and formulae, and applicant necessarily must use meager tools provided by language; if claims, read in light of specification, reasonably apprise those skilled in art both of utilization and scope of invention, and if language is as precise as subject matter permits, courts can demand no more; existence of inescapable area of uncertainty is not sufficient justification for denying to patentee the fruits of his invention.

18. Construction of specification and claims—Claim defines invention (§ 22.30)
Scope of patent is limited by language of claims.

19. Infringement—Substitution of equivalents — In general (§ 39.751)

Where infringer attempts to appropriate essence of invention while remaining outside language of claims, courts apply doctrine of equivalents whereby essence of invention is protected; patentee is protected even though he was more precise than subject matter of invention permits or requires.

20. Construction of specification and claims—By specification and drawings — In general (§ 22.251)

Claim must be read in light of specification and drawings.

21. Claims — Functional — In general (§ 20.451)

Specification and claim to some extent interrelate description of configuration and function, but latter merely aids in understanding scope of patent; patentee is not attempting to claim a function, but claim is restricted to configuration, and functional aspects of description are suitable supplementary means of indicating breadth of patent grant; claim is valid.

22. Claims — Indefinite — In general (§ 20.551)**Patentability — Evidence of — Acquiescence in validity (§ 51.453)**

Long continued acquiescence in patent owner's unilateral and highly successful promotion of patented device strongly suggests that those skilled in art considered patent not only inventive but also sufficiently definite to withstand judicial scrutiny.

23. Construction of specification and claims — By Patent Office proceedings — In general (§ 22.151)**Infringement — Change in arrangement, form, material or size (§ 39.15)**

Although plywood escapes literal language of claim by gouging to uniform, rather than random, depth, infringement is not avoided since file wrapper shows that random depth striation was considered only to be preferable and not essential to practice of patent; courts do not permit infringement to be avoided by such immaterial changes.

Particular patents—Plywood Panel

2,286,068, Deskey, Plywood Panel, claim 1 valid and infringed; claims 2 to 7 invalid.

2,363,492, Bailey, Making Balanced Laminated Panels, declaratory judgment complaint dismissed.

2,363,927, Bailey, Balanced Striated Plywood Panel, declaratory judgment complaint dismissed.

Case History and Disposition:

Appeal from District Court for Southern District of New York, Herlands, J.; 112 USPQ 26 .

Action by Georgia-Pacific Corporation against United States Plywood Corporation for declaratory judgment of patent invalidity and noninfringement in which defendant counterclaims for patent infringement and unfair competition. From judgment for plaintiff, defendant appeals. Modified.

See also 108 USPQ 294 , 108 USPQ 370 .

Attorneys:

WILLIAM O. HEILMAN (JAMES M. HEILMAN and HEILMAN & HEILMAN on the brief) all of New York, N. Y., for appellant.

JOHN VAUGHAN GRONER (CHARLES B. SMITH on the brief) both of New York, N. Y., for appellee.

Judge:

Before MEDINA, LUMBARD, and WATERMAN, Circuit Judges.

Opinion Text

Opinion By:

LUMBARD, Circuit Judge.

Defendant, assignee of Deskey patent, No. 2,286,068, and Bailey patents Nos. 2,363,492 and 2,363,927, appeals from a judgment by Judge Herlands, Southern District of New York, entered in an action for a declaratory judgment of invalidity and non-infringement of the three patents. Two counterclaims, one for infringement of the Deskey patent and another for unfair competition, were interposed in the suit. The district court held that all three patents were before the court, that all claims were invalid for lack of invention, that the specifications of the Deskey patent were fatally vague and indefinite and its claims did not distinctly claim the subject matter of the alleged invention, that the accused product did not infringe any of the three patents, and that there was no proof of unfair competition. Accordingly, Judge Herlands dismissed the two counterclaims and entered a declaration of invalidity and non-infringement. 148 F.Supp. 846, 112 USPQ 26 .

We cannot agree with the district judge in several respects. Claim 1 of the Deskey patent claims an invention which was properly described with sufficient definiteness, and the accused product infringes this claim. We thus reverse the judgment of the district court and direct that judgment be entered in favor of United States Plywood Corporation declaring claim 1 of the patent valid and infringed and granting an injunction and such further relief as is appropriate against Georgia-Pacific Corporation. Moreover, in our view the Bailey patents were never in issue in the district court.

The Deskey patent, issued on June 9, 1942, is central to this litigation. The general subject matter of the patent is plywood panels, which consist of an odd number of thin plies of wood veneer with the grain in the adjacent plies crossed at right angles to each other. Since veneer is weak along the grain but relatively strong across the grain, the

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cross plies in plywood result in a wood product of considerable strength in relation to its weight and dimensions. The more inexpensive woods, however, such as Douglas fir, present a flat wide-grained appearance with limited appeal for use by the public when esthetic qualities are important. Further, the defendant claims that Douglas fir and like woods have two tendencies which militate against their use as decorative panels. The first is that the face ply has a tendency to expand and shrink under changing moisture conditions, resulting over a period of time in unsightly cracks between abutting panels. Also, defendant contends, because of the peculiar graining of these woods, changing moisture conditions will cause the face plies to check or open up surface cracks on the exposed panel. These contentions will be dealt with more fully when we discuss the issue of patentability. It is enough to say at this point that the Deskey patent is by its disclosures directed toward reducing edge effect and checking by grooving the face ply. The result is a striated panel with multiple and alternating ribs and grooves cut to a substantial depth in the face ply but not as deep as the glue line, across the entire panel and running the length of the face ply. By striating defendant contends that stresses created by the difference in moisture content on the surface and within the ply are localized within and across the ribs, thus reducing the incidence of checking and the tendency of abutting panels to draw away from each other.

The Bailey Patents

The Bailey patents, one for a product and the other for a process, are directed toward another problem. If only one face ply of a panel with face plies of equal thickness is striated by the cutting

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away of wood, the striated panel is somewhat thinner than the reverse face. The resulting imbalance causes the entire panel to warp. The Bailey patents purport to teach the art that balance may be achieved by using a heavier ply for the exposed face. The grooving of this heavier face brings the panel into balance and this eliminates the tendency to warp. Both the Deskey striation and the Bailey balancing patents are used in Weldtex, defendant's trademarked product.

[1] The plaintiff, Georgia-Pacific Corporation, first manufactured its accused panels in February 1955 and in March delivered a sample to defendant's manager in Newark. Immediately thereafter Sol W. Antoville, defendant's president, wrote a brief letter to plaintiff threatening vigorous action to protect its patent rights. It is this letter which provides the basis for the action for a declaratory judgment:

March 11, 1955

Dear Owen:

While imitation is supposed to be the sincerest form of flattery, I must confess to a different reaction when I learned that you are imitating Weldtex.

As you know, Weldtex is covered by U. S. Patents which have been recognized by the industry for more than thirteen years. Under the circumstances, we will of course take vigorous action to protect our patent rights and are turning the matter over to our counsel for appropriate action.

Sincerely

Tony

The district judge held that this letter raised a justiciable controversy respecting not only the Deskey patent but both Bailey patents as well. We cannot agree. Only the Deskey patent had "been recognized by the industry for more than thirteen years." Of more importance is the nature of the accused product. Georgia-Pacific's competing product is a striated plywood. Its balance is achieved, however, not through the use of face plies of unequal thickness but through the cutting of wide channels at regular intervals in the reverse ply. Consequently, there could not have been even a colorable claim that the accused product infringed the Bailey patents. That there was no intention to charge infringement of the Bailey patents is supported by the express testimony to that effect by Antoville and the use in the letter of the phrase "imitating Weldtex." That phrase clearly indicates a preoccupation

with the similar appearance caused by striation. Since defendant did not claim infringement of the Bailey patents, there was no controversy concerning them and they were not properly before the district court. *Tremond Co. v. Schering Corp.*, 122 F.2d 702, 50 USPQ 593 (3 Cir. 1941).

Patentability

We turn now to the issue of patentability, necessitating a discussion of the Deskey patent in the light of the prior art.

Patents cited against the Deskey application in the Patent Office or cited in this litigation fully disclose that striation of wood products is old in the art. During the decade and a half following the First World War several patents were issued which concerned imitation cedar shakes, i.e. sawed shingles grooved to resemble old-fashioned hand-split shingles, then becoming popular, particularly in the Northwest. Putman No. 1,577,150 (imitation shake shingles), Melby No. 1,634,789 (shingle grooving machine), Melby No. 1,764,412 (imitation shake shingles), Putman No. 1,780,097 (shingle grooving machine), Craft No. 1,820,445 (shingle grooving machine), Gilmer No. 1,910,895 (shingle grooving machine), Gilmer No. 1,943,597 (process for grooving shingles), and Putman (Canadian) No. 302,038 (grooved lumber) all disclosed to those skilled in the art at least the decorative effects of grooving solid wood products. Abbott No. 1,610,233 also dealt with shingles and specifically referred to coniferous woods. In the Abbott patent, however, the surface was abraded by wire brushing or sandblasting rather than gouged by a cutting tool, the abrasion removing the softer wood in the grain.

[2] Striating or grooving was also used at a prior time for decorative effect in the plywood field. For instance, Melby produced a plywood product (Moray), the panels being superficially grooved so as to simulate moire cloth. Defendant urges that this Moray plywood was an abandoned experiment and thus not part of the prior art. As the district judge found, however, Moray plywood was a finished article which required no further experimentation, was commercially exploited, and was used in at least three different buildings. Although further exploitation foundered on an ineffective public demand, due at least in large measure to the advent of the depression, the Moray plywood must be considered as part of the prior art. *Picard v. United Aircraft Corp.*, 128 F.2d 632, 634, 53 USPQ 563, 564-565 (2 Cir. 1942), cert. den. 317 U.S. 651, 55 USPQ 493.

Other relevant patents are Hansen No. 1,433,077; Maurer Nos. 2,202,109, 2,202,110, and 2,244,426; Elmendorf Nos. 1,819,775 and 2,018,712; Morden No. 1,

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773,695 and Gram No. 2,090,529. Hansen No. 1,433,077 taught that the warping of veneer panels could be substantially reduced by incising the face of the veneer with a pattern of short slits. This was a cutting, rather than a gouging operation, and no wood was removed. Incising also was central to the three Maurer patents. The subject matter of Maurer No. 2,202,109 was a wood finishing process designed to simulate hardwood grains in the less expensive woods by incising the surface and then filling the perforations. Maurer No. 2,202,110 disclosed a machine for performing the incision process and Maurer No. 2,244,426 covered another incision machine, this one for use with laminated panels. The latter patent does not in terms state that the object is to simulate graining, although this obviously was one purpose. The practice of this patent could result in a grooved panel, the grooves being formed by incising or indenting the face of the panel with small discs having V-shaped peripheral edges, but the ribs would be formed largely through compression.

Warping and curling were attacked in another way by Elmendorf No. 1,819,775. A very thin veneer (as commercially practiced by U.S. Plywood in its product Flexwood, 1/85øø) is broken up into small strands of wood fibers by bending the veneer over an edge and the ruptured veneer is mounted on a flexible backing. The result is a flexible veneer which can be applied like wallpaper. A variation of this basic idea is found in Elmendorf No. 2,018,712, where a thicker panel is ruptured along the grain and then mounted on an elastic plastic substance which fills the cracks and binds the strands.

Morden No. 1,773,695 attempted to solve a different problem in wood technology, one which is intimately related to the problem which Deskey seeks to solve. The patent discloses a method for concealing the visibility of joints in composite boards by grooving so as to mask the edge separation. Further, the individual boards are locked on metal strips, thus reducing movement caused by shrinkage and expansion of the boards which would ordinarily cause edge separation and cracks between the boards. The masking of joints is accomplished in another manner by Gram No. 2,090,529, which is directed to laminated wallboard, especially fir. Here the panel is grooved at uniformly spaced intervals on the face of the panel and a grooved batten is inserted at the joints. The overall effect is that of a series of abutting boards, since the battened joints are indistinguishable from the grooved sections on the face of the panel.

In the light of prior art, it is clear that grooving wood and related products for decorative effect both by destroying the flat grained surface and masking joints was well known and that those skilled in the art were familiar with incising as a means of graining and incising and rupturing as a means of controlling warping. It is against this back-ground of knowledge that we must evaluate the Deskey patent and decide whether a plywood so striated is a significant and unobvious contribution to the art.

Basic to the Deskey patent is the fact that plywood panels covered by the claims are to be used where an esthetically pleasing appearance is essential. This emphasis on appearance raises several problems. A pleasing surface appearance is accomplished by striation, which breaks up the grain, a fact long known to the art. Striation also serves to mask the line between abutting panels, and any gouging pattern obscures defects on the surface of the wood. It does not purport to have a significant effect on warp control. Indeed, unless the panel is balanced by such procedures as channeling the reverse face, as done by Georgia-Pacific, or using an initially thicker ply on the exposed face as taught by the Bailey patents, the striation increases the tendency of the entire panel to warp or curl.

Any contribution of the Deskey patent must lie beyond the area of those problems and their past solutions. Defendant contends that the Deskey striated plywood is a useful, novel, and inventive concept because it meets and goes far in solving the problems of edge separation and checking in softwood panels in a manner not suggested by the prior art. Indeed, the file wrapper history shows that it was a demonstration of the effectiveness of the Deskey patent in meeting these two problems which caused the Patent Office to issue the patent.

As indicated by the district judge, checking and edge separation are problems general to the wood industry and to plywood in particular. Changes in moisture conditions cause the surface of wood, here the face ply, to expand and contract. As abutting face plies expand, the abutting edges press upon each other, compressing the wood cells along the edges beyond their limits of elasticity. Shrinkage of the face plies to their prior size opens up unsightly cracks, which are widened by further contraction when plies become drier. Since plywood panels are considerably wider (generally 4' to 8') than boards or shingles and since expansion and contraction stresses ac-

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cumulate across the whole face of the panel, the edge separation problems in plywood are obviously more acute.

Checks are hairline cracks which are opened up on the surface of the panel by internal stresses in the wood. We are told that moisture changes are again a major, although not the sole, determinate of the incidence of checking. As the moisture content varies between the surface and the interior of the ply, internal stresses are created which cause wood cell separation. In plywood the face ply is tightly bound to the other plies by glue, thus restraining the elasticity of the whole sheet and confining the stresses and their relief to the thin veneer.

Both problems are accentuated in plywood made from Douglas fir and similar woods. Fir has a high coefficient of expansion relative to other woods. In addition, fir has two pronounced growth rings each year, a soft spring growth and a harder summer and fall growth. Also, a veneer log is rotary peeled in much the same way as paper is taken off a roll. Since no log is perfectly rounded, the amount of a particular growth ring picked up by the peeler in the plane of any panel will vary. As a result, a typical ply will contain areas of both wide and narrow

grain and these grains will be alternately hard and soft. The irregular graining and alternating densities both contribute to producing stresses in fir plywood.

The Deskey patent attempts to meet the problems of edge separation and checking by striation. Relief of facial stresses due to the changes in moisture content is accomplished by gouging out a multiplicity of narrow grooves across the face of the panel, lengthwise to the grain, leaving relatively narrow ribs or bands separated by the grooves. The grooves must be considerably more than surface scratches, many of them necessarily extending beyond the median of the ply so as to break up the hard summer and fall grain which wanders through and in and out of the plane of the face ply. Surface stresses, instead of accumulating across the face of and through the ply, are localized and dissipated in the ribs, which can accommodate these pressures.

Plaintiff contends, and the district judge agreed, that the patent covers nothing more than a decorative panel and that the alleged solution by Deskey of problems relating to edge separation and checking is an attempt artificially to create and solve a problem in an effort to impart an aura of invention to an otherwise familiar concept by claiming for it a spurious utility. Further it is argued that even if edge separation and checking do cause some trouble in the plywood industry, the Deskey approach of cutting deeper grooves in plywood is an obvious application of the old art of striation, not rising to the level of invention.

Considerable evidence demonstrates that the Deskey striation attacks an old and very real problem in the Douglas fir plywood industry. The validity of the checking problem is indicated by a 1955 report of the Douglas Fir Plywood Association, a producers' organization primarily concerned with quality control and marketing. The report, which studies the factors affecting the face checking of plywood, states flatly, "The face checking of Douglas fir plywood has been a major problem of the industry for a long time," and Cornelius Reckers, laboratory chief of and the expert witness for Georgia-Pacific, conceded that checking was a "fairly serious problem." Testimony indicates that the seriousness of the problem has been increasing in recent years, since the exhaustion of the better grade logs has required the progressive use of poorer timber. The evidence also establishes that the industry has never guaranteed untreated plain fir plywood against checking. Indeed, the defendant for years expressly noted on its invoices that such plywood could not be warranted against checking. Over the years checking has also been a continual source of complaints from users and retail lumber dealers. Although the district judge felt that the volume of complaints was insufficient to establish that the checking problem was significant, the number of complaints must be evaluated in the light of the generally understood industry practice that the risks of checking fall on the user. The testimony of experts and numerous affidavits of lumber dealers reinforce the conclusion that checking caused considerable and continuing concern to the fir plywood industry. The edge separation difficulty, which the lower court found was accentuated in plywood and especially in fir plywood, is attested to by the Morden patent, where composite boards were striated to mask the cracks, and also by testimony although the evidence suggests that it is a considerably less serious problem than checking.

That the Deskey striation was an effective solution cannot be denied. In a series of experiments, the report of which played a significant part in the successful Patent Office prosecution of the application, Prof. Bror L. Grondal of the University of Washington College of Forestry, an expert in wood technology with long experience and a national reputation who testified at the trial below, discovered and reported that the Deskey striation had "a pronounced

'edge effect,' very substantially reducing the tendency for visible and actual cracks to appear between abutting panels," and reduced or prevented "surface checking, not merely by hiding the checks due to the presence of grooves, but by relieving the stresses that cause such checks to appear in plywood with solid faces." Plaintiff attacks the accuracy and methodology of these experiments and the validity of the conclusions drawn from them. The fact remains, however, that experience has substantially demonstrated the validity of those conclusions,

particularly that regarding checking. The defendant has been able to warrant Weldtex against checking and indeed has used this feature as an essential element of its commercial promotion. Contrary to the experience with plain fir plywood, neither checking nor edge separation has been a source of complaints from users of Weldtex. Over a sixteen year period (1940-1956) the product has enjoyed an amazing success, with total sales in the United States exceeding \$56,000,000. Although it is undoubtedly true that the decorative appearance of Weldtex and the effectiveness of grooving in masking edge effects and checking have contributed toward this commercial success, we believe that the advantages stressed in the Deskey patent have played a significant role in the widespread and continued public acceptance of the product.

[3]If, then, the Deskey striation does have a very real utility, is it a novel and an inventive advance over the prior art? We think the question must be answered in the affirmative. Decorative striation is old in the art, but its use was previously confined primarily to shingles and other solid lumber products where its efficacy in relieving stresses was minimal and even that minimal relief was generally unrecognized. Gilmer No. 1,910,895, it is true, commented that a fluted shingle would "be more resistant to rot and would not check or warp as readily due to the longitudinal flutings affording a greatly increased dispersion of the shrinking and expansion strains. * * *" This offhand statement, however, taught no one that deep grooving of plywood was a solution to an industrial problem. "It is unrealistic to reason that (the inventor) did nothing more than might be expected of the skilled mechanic, when neither the owners of such prior art patents nor any member of the public after their expiration discovered that their teachings were worth reducing to practice." *Artmoore Co. v. Dayless Mfg. Co.*, 208 F.2d 1, 4, 99 USPQ 306, 308 (7 Cir. 1953), cert. den. 347 U.S. 920, 100 USPQ 447. See also *Ric-Wil Co. v. E. B. Kaiser Co.*, 179 F.2d 401, 404, 84 USPQ 121, 124 (7 Cir. 1950), cert. den. 339 U.S. 958, 85 USPQ 526. The other shingle patents were equally ineffective in suggesting that such striation would control edge separation and checking. Indeed, Prof. Grondal testified that he was skeptical about the claimed advantages of the deep striation until these claims had been borne out by experimentation. Grooving of shingles did suggest superficial grooving of plywood for decorative effect, as the Moray panels bear witness, but no one until Deskey realized that this decorative effect could be turned to a utilitarian advantage by cutting deeper into the surface of the plies. Melby, producer of the Moray panels, himself inferentially supports the view that the Moray product did not anticipate Weldtex as on deposition he recognized his right to produce Moray without license but testified that he had sought a Weldtex license and on its refusal did not attempt to produce the patented product.

Morden recognized the utility of superficial striation in masking joints. Instead of grooving well into the surface to reduce edge effects produced by expansion and shrinkage, however, he tried to meet the same problem by an elaborate arrangement of locking metal strips. If the Deskey concept was obvious to most, it was not obvious to Morden. Nor was it obvious to Gram, who used grooving to mask battens which were inserted to conceal the abutting edges. Hansen and Maurer incised veneer, thereby creating artificial checks either for the purpose of simulating a grain or for preventing warping; Elmendorf ruptured the wood fibres to prevent warping or curling. That products produced according to the teaching of those patents necessarily relieved stresses is of little moment; these patents called for introducing checks by cutting or splitting and none suggested gouging out wood from the surface. The practice of Maurer No. 2,244,426 could, it is true, result in a grooved panel, but the grooving is not by gouging but by indentation and consequent compression, thus obviously creating rather than relieving stresses. The prior art patents teach little about solving problems which Deskey solves without loss of other features. See *Samson-United Corp. v. Sears, Roebuck & Co.*, 103 F.2d 312, 41 USPQ 519 (2 Cir. 1939), cert. den. 307 U.S. 638, 41 USPQ 799.

[4] The district judge believed that the teachings of the Deskey patent are limited to showing that a slight change in degree in a process old in the art would produce somewhat more favorable results. Both superficial grooving of plywood and the striation of solid lumber tend to relieve stresses even if the tendency is not so marked as it is under

the Deskey patent. Hence, it concluded that the patent involves no more than an obvious application of prior knowledge differing only in degree and not in kind. This conclusion that a patent involves a matter of degree rather than a change in kind is inevitably in essence a peculiarly personal judgment that the patented discovery did not require the level of intellectual effort and perception which entitles it to statutory protection. See *Kirsch Mfg. Co. v. Gould Mersereau Co.*, 6 F.2d 793 (2 Cir. 1925). "The question always is whether the inventive act is of sufficient magnitude to justify the extension of a legal monopoly for the matter covered by the claims." *Helene Curtis Industries v. Sales Affiliates*, 233 F.2d 148, 152, 109 USPQ 159, 162 (2 Cir. 1956), cert. den. 352 U.S. 879, 111 USPQ 467.

[5][6][7] It is true that a patentee cannot arbitrarily select a range in a known progressive change and maintain a patent monopoly on the products falling within that range on the ground that the designated range produces optimum results. *Kwik Set v. Welch Grape Juice Co.*, 86 F.2d 945, 32 USPQ 104 (2 Cir. 1936). Such a selection of ranges ordinarily involves merely pedestrian skills. Here, however, we have concluded that the Deskey striation has a very real utility which arises primarily from the deep grooving, a utility which was insubstantially present in the prior art and at most, if at all, only dimly perceived. Benefits incidentally and accidentally accruing in the products of the prior art do not necessarily negate invention in a change in degree when the purpose is different and the results new and useful. *Eibel Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 66 (1923). If the plywood must be physically changed, it can be a proper subject of a valid patent, *Gillman v. Stern*, 114 F.2d 28, 30, 46 USPQ 430, 432-433 (2 Cir. 1940), cert. den. 311 U.S. 718, 48 USPQ 713, and "(n)othing is easier in patent litigation than to confuse a trifling physical change with the ingenuity demanded for its discovery. * * *". *Refractolite Corp. v. Prismo Holding Corp.*, 117 F.2d 806, 807, 48 USPQ 497, 498 (2 Cir. 1941). Nevertheless, in view of the careful and comprehensive opinion below, we would hesitate to dispute the district court's conclusions if our opposing views were supported only by the fact that numerous patents had attempted to deal with related and unrelated problems in the wood industry by incising, grooving and rupturing, but none had hit upon deep striation as a solution to checking and edge effects.

[8][9][10] There are other factors, however, which we must consider. One is that plaintiff is attacking a patent duly issued by the Patent Office. From this flows a presumption of validity, a presumption which is perhaps too often minimized in the courts. Indeed, since the passage of the 1952 Act, 35 U.S.C.A. § 1 et seq., we have had occasion to comment on the fact that restrictive judicial views of inventiveness developed in cases where duly issued patents were declared invalid departed from the more liberal standards pertaining at a prior time and forced a Congressional reinvigoration of the standards. *Lyon v. Bausch & Lomb Optical Co.*, 224 F.2d 530, 106 USPQ 1 (2 Cir. 1955), cert. den. 350 U.S. 911, 107 USPQ 362. Expertness and experience in passing upon patents lie primarily in the Patent Office and these important factors are only partially offset by the greater concentration and the additional relevant evidence which can be brought to bear in any particular patent litigation in the courts. The presumption of validity is entitled to particular weight when, as here, the file wrapper history discloses a careful consideration in the Patent Office before issue. The two Melby patents. Gram and Putman were all cited in the Deskey application as prior art references, the Craft-Putman-Melby shingle patents being those which plaintiff most strongly urges upon us now to support the finding of invalidity.

[11] The presumption of validity is reinforced by the history of previous litigation and two decisions of Judge Pierson M. Hall in the District Court for the Southern District of California. In that action for infringement by U.S. Plywood Corp., against an interrelated group of individuals and companies, Judge Hall was faced in 1949 with the same question of the validity of the Deskey patent. He had before him at that time not only the file wrapper history but also the Hansen, Morden and Elmendorf patents, Gilmer patent No. 1,943,597, and the Moray panels. A number of exhibits and over 100 depositions and affidavits were introduced, and the oral argument during the injunctive relief proceedings covers over 350 pages. Although a final judgment on the merits was never entered

because the defendants in that case consented to a decree to be entered adverse to them, on both applications for a preliminary injunction, Judge Hall held that the Deskey patent was valid and infringed and granted equitable relief. *U.S. Plywood Corp. v. Zeesman Plywood Corp.*, 84 F. Supp. 78, 81 USPQ 436 (S.D. Calif. 1949), 92 F.Supp. 336, 86 USPQ 184 (S.D. Calif. 1950). These considered

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judgments are entitled to weight on this appeal.

[12] There are two other factors of very great significance. The first is the commercial success enjoyed by Weldtex. Despite severe wartime restrictions on production, over 340,000,000 square feet of Weldtex were sold from 1940 to 1956 in the United States alone, a wholesale volume totalling \$56,000,000 for those years. ¹ During this period another 50,000,000 square feet have been marketed in Canada through a licensee and Weldtex is also being produced in other countries. As we pointed out before, this commercial success may in considerable measure be due to the decorative appeal of Weldtex and the effectiveness of the striation in masking joints and checks. It seems obvious, however, that effective relief of stresses substantially contributed to that success because striation was recognized as a novel and inventive solution to old problems, meeting a long standing need. Such commercial success is an important factor in a doubtful case. *Technical Tape Corp. v. Minnesota Mining & Mfg. Co.*, 247 F.2d 343, 347, 114 USPQ 422, 425 (2 Cir. 1957), cert. den. 355 U.S. 952, 116 USPQ 602 ; *City of Grafton v. Otis Elevator Co.*, 166 F.2d 816, 819, 76 USPQ 450, 452 (4 Cir. 1948).

[13] The commercial success of Weldtex must be viewed in the light of the long-continued public acquiescence in the validity of the patent. Such a volume of sales not only raises the inference that the plywood was a product of invention; it also understandably leads to pressure on competitors to imitate the product and thus appropriate part of this profitable market. Indeed, Cornelius Reckers, Georgia-Pacific's laboratory chief, testified that plaintiff began the manufacture of striated plywood because it was "extremely advantageous from a profit standpoint." It is most significant, therefore, that the only plywood manufacturers to contest the defendant's statutory monopoly prior to the present litigation was an interrelated group of persons and firms in California in 1949, and, after two injunctions had been issued against it, it consented to an adverse decree. Thus Georgia-Pacific was the first producer to litigate fully the Deskey patent, and this attack was not initiated until 13 years after the patent issued.

This unwillingness in an industry to engage in extensive patent litigation can sometimes be explained in terms unrelated to the validity of the patent: the limited commercial appeal of the product may make even successful litigation unprofitable or the industry may be composed of such small producing units that no single one of them is able to undertake the burden and expense of a big litigation. Here the record shows that the plywood industry was comprised of many relatively large units, and the large profits to be made as a result of the strong commercial appeal of a product like Weldtex were well recognized. A recent compilation which was in the record disclosed that 38 units each had estimated sales exceeding \$5,000,000 annually of ~~600~~ plywood alone and that 98 mills had an aggregate annual sales volume in that product of over \$400,000,000. It should also be noted that the defendant has paid out to Deskey in the period 1940-1956 over \$533,000 in royalties. It is highly unlikely that a firm in a competitive industry would commit itself to pay such royalties if there was a substantial likelihood that the rest of the industry could manufacture the product free of the patent. See *Coltman v. Colgate-Palmolive-Peet Co.*, 104 F.2d 508, 511, 41 USPQ 380, 383 (7 Cir. 1939), cert. den. 308 U.S. 598, 43 USPQ 520.

Deskey "recognized, attacked and successfully solved (the problems of checking and edge effect), achieving new, unobvious and unexpected results in a manner not suggested or disclosed to one skilled in the art. * * *" *Application of McKenna*, 203 F.2d 717, 721, 97 USPQ 348, 351 (C.C.P.A. 1953). Hence, we conclude that the Deskey striation is not anticipated and constitutes invention.

Indefiniteness

We have been discussing whether the Deskey striation is capable of being patented and have concluded that it

is. The patent statute, however, requires more: the specification must describe the invention in "full, clear, concise, and exact terms as to enable any person skilled in the art * * * to make and use the same. * * *" and there must be claims "particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention." 35 U.S.C.A. § 112. We turn first to the seven claims of the patent. ²

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In the specification of the Deskey patent, before the district court, and again on appeal, it has been urged that the Deskey striation meets a problem peculiar to the Douglas fir plywood industry. Edge separation and checking do arise in any plywood to a limited extent, but the problem in other woods is minimal. We have concluded that deep grooving is an inventive concept rather than merely an obvious change in degree in the application of a known art only because we are convinced that the use of Douglas fir and like woods poses distinct problems which are met in a new and unobvious fashion. The superficial grooving of the Moray panels does not anticipate because it has no substantial functional utility in relieving stresses; its purpose and effect is primarily decorative. By the same token, since panels made from wood dissimilar to Douglas fir have little tendency to check or separate at the edges, deep striation of such panels serves no utilitarian function of stress relief. Consequently, we conclude that claims covering all types of plywood are beyond the scope of the Deskey invention.

[14][15] Only one of the claims is properly limited to the scope of the Deskey invention. That is claim 1, which claims "a plywood panel having a face ply of rotary-cut wood having pronouncedly different hard and soft growth, and consequent 'wild' graining when rotary-cut. * * *" Claims 2 to 7 are not so limited, and therefore we agree with Judge Herlands that they are invalid. It has often been stated that the scope of claims should be limited in light of the specifications if necessary to uphold the patent, see e.g. *Westinghouse Electric & Mfg. Co. v. Quackenbush*, 53 F.2d 632, 634, 11 USPQ 44, 46 (6 Cir. 1931), but that doctrine will not avail defendant U.S. Plywood here. The rule applies only if the claims are ambiguous and it cannot serve to save claims which were intentionally drafted to obtain a statutory monopoly broader than seems to be justified. *Aluminum Co. of America v. Thompson Products*, 122 F.2d 796, 51 USPQ 237 (6 Cir. 1941). Here the defendant not only referred to other woods in the description but carefully limited claim 1 to woods having the characteristics specifically defined in the claim, which are aptly descriptive of fir. Limitations in some claims in a series will not be read into the others. *Western States Machine Co. v. S.S. Hepworth Co.*, 147 F.2d 345, 350, 64 USPQ 141, 146 (2 Cir. 1945), cert. den. 325 U.S. 873, 65 USPQ 589.

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The district judge, however, went further, holding that the description in the specification of the patent is fatally vague and indefinite and that none of the claims, including claim 1, particularly points out and distinctly claims the subject matter which the applicant regards as his invention. These conclusions appear to be predicated upon the lack of objective measurements both in the specification and claims and the inability of expert witnesses precisely to delimit the scope of the Deskey claims.

[16] We think that the district court was too rigorous in applying the requirement of precision. This requirement serves two primary purposes: those skilled in the art must be able to understand and apply the teachings of the invention and enterprise and experimentation must not be discouraged by the creation of an area of uncertainty as to the scope of the invention. On the other hand, the policy of the patent statute contemplates granting protection to valid inventions, and this policy would be defeated if protection were to be accorded only to those patents which were capable of precise definition. The judicial function requires a balancing of these competing considerations in the individual case.

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[17] It is true that the Supreme Court has stated that "(a)n invention must be capable of accurate definition, and it must be accurately defined, to be patentable," *United Carbon Co. v. Binney Co.*, 317 U.S. 228, 237, 55 USPQ 381, 386 (1942), and this Court recently stated that "* * * the requirement of the Act for definiteness in the statement of claims must be strictly construed," *Helene Curtis Industries v. Sales Affiliates*, supra, at 160, 109 USPQ at 168. Such general statements, however, must be viewed in the context of circumstances. Objectionable indefiniteness must be determined by the facts in each case, not by reference to an abstract rule. *Chicago Pneumatic Tool Co. v. Hughes Tool Co.*, 97 F.2d 945, 948, 38 USPQ 258, 261 (10 Cir. 1938), cert. den. 305 U.S. 643, 39 USPQ 559. If the subject matter of the patent is such that the patentee cannot verbalize his invention comprehensibly or is incapable of ascribing reasonable limits to his claims, regardless of intrinsic merit his invention cannot be patented. Likewise, the patentee is required to draft his specifications and claims as precisely as the subject matter permits, and his failure to do so may result in judicial invalidation of his patent.

On the other hand, patentable inventions cannot always be described in terms of exact measurements, symbols and formulae, and the applicant necessarily must use the meager tools provided by language, tools which admittedly lack exactitude and precision. If the claims, read in the light of the specifications, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more. See *Lever Bros. Co. v. Procter & Gamble Mfg. Co.*, 139 F.2d 633, 639, 60 USPQ 76, 81-82 (4 Cir. 1943); *H. H. Robertson Co. v. Klauer Mfg. Co.*, 98 F.2d 150, 153, 38 USPQ 203, 206-207 (8 Cir. 1938). That an area of uncertainty necessarily exists in such a situation cannot be denied, but the existence of an inescapable area of uncertainty is not sufficient justification for denying to the patentee the fruits of his invention.

[18][19] Indeed, in the administration of the patent statutes uncertainty has been introduced by express judicial creation. It has often been stated that the scope of the patent is limited by the language of the claims. Where, however, an infringer has attempted to appropriate the essence of the invention while remaining outside the language of the claims, courts have not hesitated to apply the doctrine of equivalents, whereby the "essence" of the invention is protected. See *Claude Neon Lights v. E. Machlett & Son*, 36 F.2d 574, 575, 3 USPQ 220, 221 (2 Cir. 1929), cert. den. 281 U.S. 741. In such situations the patentee is protected even though he has been more precise than the subject matter of the invention permits or requires. It would be anomalous if this Court were to strike down a patent because the inevitable area of uncertainty was created by the language of the specifications and claims rather than by judicial application of equivalency doctrine. See *Philip A. Hunt Co. v. Mallinckrodt Chemical Works*, 177 F.2d 583, 585, 83 USPQ 277, 279 (2 Cir. 1949).

To turn to the Deskey patent, the specification in general terms describes the invention:

I have found it possible to eliminate these stresses, and the deleterious effects thereof, by gouging the surface or surfaces of the panel with a multitude of closely spaced grooves, extending generally parallel to the grain, and preferably of uneven, irregular, and random depth, following no recurring pattern, but sufficiently closely spaced, and having, at sufficiently close intervals, sufficient depth as to cut through the recurring grain layers, and to break up each individual layer and the surface of the panel generally into narrow widths or ribs of uncut wood. Within these narrow widths the stresses which cause the shrinking,

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cracking, checking, and swelling may not accumulate to such an extent that they may not be relieved within the grooves in the surface.

The grooves need not conform, in cross-section, to any particular form, but may be V-shaped, rounded, or individually of different contours. Whatever the instrumentality used, each individual groove should be reasonably continuous and of the same depth, from end to end, through soft spring growth and hard summer and fall growth, for any material discontinuity or variation in continuity, particularly over an

appreciable width or area, will leave an area wherein stresses are cumulative.

The essential of this invention is that the grooves are of such depth, relative to the thickness of the face ply, and are closely enough spaced, that the rigs are of slight width, and the stresses in the gouged surface areas of the face ply are relieved, and can not accumulate to any appreciable extent. Preferably the grooves do not extend to or through the glue line ("glue" meaning any adhesive such as is used or is suitable for use in plywood manufacture) but more or less frequently recurring grooves may extend almost to the glue line, with intervening grooves of lesser and irregular depth. The grooves vary in depth, as the sample and photographs show, from mere surface scratches to grooves of a depth to extend to or past the neutral plane of the grooved face ply (halfway through the ply), some being of a depth approaching the thickness of the ply itself.

The outer surface of the face ply being thus made discontinuous, the fibers in and just beneath the original surface are separated from other fibers at either side and the grain laminas are severed and cut through; stresses arising from shrinkage can not possibly be transmitted nor built up cumulatively in lateral directions. The most they can build up is across the base of each rib, and each such stress is minute; if they are sufficiently deep grooves, sufficiently closely spaced, the cumulative build-up of lateral stresses to an excessive value is very effectively prevented.

We think both the essence of the invention and the reasons why it cannot be more precisely described reasonably appear from the above paragraphs which are a portion of the specification. The patent covers a striated plywood surface formed by gouging out "a multitude of closely spaced grooves," a varying but considerable number of which must extend to or through the median of the ply. The number of grooves, their size and configuration, the size of the ribs, and the depth of the grooving are all variable within limits, and the infinite permutations of variables preclude a definitive statement of these limitations.

[20] This inevitable imprecision, however, is not fatal. Claim 1, ³ read, as it must be, in the light of the specifications and drawings [H. H. Robertson Co. v. Klauer Mfg. Co., *supra*; Chicago Pneumatic Tool Co. v. Hughes Tool Co., *supra*; Raytheon Mfg. Co. of Newton, Mass. v. Coe, 96 F.2d 527, 37 USPQ 112 (D.C. Cir. 1938)] reasonably indicates to the industry the teachings and the scope of the patent. It is as definite as the patent application covering the accused product, as Elmendorf No. 1,819,775, upheld in Flexwood Co. v. Faussner & Co., 145 F.2d 528, 64 USPQ 261 (7 Cir. 1944), against a similar attack, and as other patents cited against it. Although the two drawings of the patent are concededly diagrammatic rather than to scale, they convey a visual perspective which aids in the interpretation of the claim.

This case has considerable similarity to Eibel Co. v. Minnesota & Ontario Paper Co., 261 U.S. 45 (1923), where the Court upheld an improvement patent in the paper industry. The patentee discovered that by increasing the height or pitch of an element of a machine the speed of the flow of paper could be increased so as to increase production and eliminate or minimize certain problems which had previously plagued the industry. The Court, pointing to the general adoption of the discovery, held the discovery patentable in the face of an attack that it constituted no more than a change in degree over the prior art. Further, the words "substantial" and "high" were held not to be too indefinite inasmuch as they were necessitated by variations in the practice of the patent and because those skilled in the art, in view of the drawing and their knowledge of the prior art, could understand the scope of the patent. See also Lever Bros. Co. v. Procter & Gamble Mfg. Co., *supra*.

[21] Here both the specification and the claim to some extent interrelate a description of configuration and function, but we think the latter merely aids in understanding the scope of the patent. The patentee is not attempting to claim a function, stress relief, and all the manifold ways of obtaining it, thus claiming more than his invention. See Philip A.

Hunt Co. v. Mallinckrodt Chemical Works, *supra*. Rather, his claim, as amplified by the specification, is restricted to striation, and the functional aspects of the description are a suitable supplementary means of indicating the breadth of the patent grant.

[22] Nor does it seem that the industry has had any difficulty in understanding the meaning of the patent or its general scope. The long continued acquiescence in the defendant's unilateral and highly successful promotion of a striated panel strongly suggests that those skilled in the art considered the Deskey patent not only inventive but also sufficiently definite to withstand judicial scrutiny. We think it may truly be said, "It is impossible to suppose that anyone who really wished to respect the patent would have any difficulty in identifying what the claim covered." *Musher Foundation v. Alba Trading Co.*, 150 F.2d 885, 889, 66 USPQ 183, 187 (2 Cir. 1945), cert. den. 326 U.S. 770, 67 USPQ 359.

Infringement

[23] Plaintiff contends that the accused product does not infringe the Deskey patent because the grooves are of equal rather than random depth. We think this variation is insufficient to escape infringement. Plaintiff's plywood does escape the literal language of claim 1 by gouging to a uniform depth. Courts have not, however, permitted infringement to be avoided by such immaterial changes. " * * * (O)ften even with the most sympathetic interpretation the claim cannot be made to cover an infringement which in fact steals the heart of the invention; no matter how auspiciously construed, the language forbids. It is then that the doctrine of equivalents intervenes to disregard the theory that the claim measures the monopoly and ignores the claim in order to protect the real invention. *Claude Neon Lights v. Machlett & Son*, 2 Cir., 36 F.2d 574, 3 USPQ 220 ; *Otis Elevator Co. v. Atlantic Elevator Co.*, 2 Cir., 47 F.2d 545, 547, 8 USPQ 356, 356; *Oates v. Camp*, 4 Cir., 83 F.2d 111, 116, 29 USPQ 150, 155." *Keith v. Charles E. Hires Co.*, 116 F.2d 46, 48, 47 USPQ 402, 404 (2 Cir. 1940).

The specification of the Deskey patent states that the grooves be "preferably of uneven, irregular, and random depth. * * *" without restricting them as the claim might otherwise indicate. It is true that claim 2 was amended to include in terms grooves of equal depth and claim 1 was not so amended, but it is clear from the correspondence with the Patent Office that the amendment was intended only to make explicit in one claim that which was implicit in all: that random depth striation was considered only to be preferable and not essential to the practice of the patent. We think that the defendant is entitled to protection against plaintiff's obvious variation, see *Musher Foundation v. Alba Trading Co.*, *supra*, at 887, 66 USPQ at 185, and that the Georgia-Pacific product infringes.

In view of our conclusion that claim 1 is valid and infringed, we need not pass upon the unfair competition issue.

Reversed and remanded for further proceedings in accordance with this opinion.

Footnotes

Footnote 1. Because of these wartime restrictions sales during 1940-1945 totalled less than \$190,000.

Footnote 2. 1. As a new article of manufacture, a plywood panel having a face ply of rotary-cut wood having pronouncedly different hard and soft growth, and consequent "wild" graining when rotary-cut, the exposed surface of said face ply having a plurality of substantially continuous grooves of random depth over the surfaces, but each groove being of the same depth throughout its length, frequent grooves being of material depth to pass through any hard growth layer encountered, said grooves extending substantially lengthwise of the grain in said ply, and generally across its width, and being sufficiently closely spaced to localize within the individual ribs or groups of ribs the normal stresses arising from shrinking, expanding and the like, and to prevent accumulation of such stresses across any appreciable width of the ply, and also to largely destroy the normal grained effect.

2. As a new article of manufacture, a plywood panel having a multiplicity of grooves in the exposed surface of at least one of the face plies thereof, frequent grooves being of substantial average depth relatively to the thickness of said face ply, and each groove being relatively narrow and disposed closely adjacent other grooves, all of such

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grooves extending substantially lengthwise of the grain of the wood, the depth of said frequent grooves and their frequency being such as to prevent stresses, normally arising from shrinking and expanding from accumulating across any appreciable width of the grooved ply.

3. As a new article of manufacture, a plywood panel having a multiplicity of grooves in the exposed surface of a face ply, said grooves being each sufficiently deep to prevent stresses, normally arising from shrinking and expanding, from accumulating across any appreciable width of the grooved ply, and of uniform depth throughout its length, but of random depth relative to other grooves, and each groove being relatively narrow, and disposed closely adjacent other such grooves, and all such grooves extending substantially lengthwise of the grain of the wood.

4. A plywood panel as in claim 2, wherein the exposed surface of each face ply is provided with grooves as specified.

5. As a new article of manufacture, a plywood panel having a multiplicity of grooves in the exposed surface of one face ply extending substantially parallel to one edge of the panel and substantially lengthwise of the grain of the wood, said grooves being each of substantially uniform depth throughout its length, and of such depth as to prevent stresses, normally arising from shrinking and expanding, from accumulating across any appreciable width of the grooved ply, but of random depth relative to other grooves, and being each of a width not appreciably exceeding its depth, and spaced without material interval from adjoining grooves.

6. A grooved plywood panel as in claim 5, wherein certain deeper grooves are of a depth approaching or exceeding half the thickness of the grooved face ply.

7. A plywood panel having across the exposed surface of a face ply, a multiplicity of grooves, extending substantially lengthwise of the grain in such face ply, the grooves being each of substantially constant average depth throughout its length, but of random depth as compared to adjoining grooves, and being each narrow and deep, and closely adjacent other grooves, certain such grooves being so deeply cut that their bottom is closer to the glue line than to the outer surface, and such grooves of all kinds being of sufficient frequency and narrowness, and sufficiently closely spaced, across the panel, to localize stress accumulation within the width between grooves, and within the width between such deeply cut grooves.

Footnote 3. See footnote 2.

- End of Case -

Hybritech Incorporated v. Monoclonal Antibodies, Inc.

(CA FC)

231 USPQ 81

Decided September 19, 1986

No. 86-531

U.S. Court of Appeals Federal Circuit

Headnotes

PATENTS

1. Patentability -- In general (§ 51.01)

Federal district court's finding that evidence was lacking as to when, before May 1980, claimed invention of using monoclonal antibodies in "sandwich" assays was conceived by patent holder, is clearly erroneous, in view of evidence demonstrating patent holder's earlier efforts in developing claimed invention by using prior art technology to produce necessary monoclonal antibodies in diagnostic sandwich assay kits, in view of evidence demonstrating that exploiting monoclonal antibodies for use in sandwich assays was one of patent holder's major objectives, and in view of laboratory notebooks and research program that fully corroborate testimonial evidence of conception, since such evidence clearly supports holding that patent holder conceived claimed invention before patent challenger and that patent challenger's work is not prior art.

2. Patentability -- Anticipation -- In general (§ 51.201)

Prior art work that involved "sandwich" assay to extent that antigen was sandwiched between two monoclonal antibodies, but that did not involve detecting presence of or quantitating antigen, did not anticipate claimed invention, since it did not meet its every element.

3. Patentability -- Invention -- In general (§ 51.501)

Articles which "predicted" widespread use of monoclonal antibodies but which are dated well after patented monoclonal assay's date of conception and within one year of its filing date, are not prior art, nor should earlier articles which discussed production of monoclonal antibodies, although clearly prior art, have been relied upon to establish obviousness of trying monoclonal antibodies of particular affinity in "sandwich" immunoassay that detects presence of or quantitates antigen, since such articles do not suggest how that end may be accomplished,

and since "obvious to try" is improper consideration in adjudicating obviousness issue.

4. Patentability -- Evidence of -- Commercial success -- Causes (§ 51.4555)

Trial court's finding that "sudden availability" of monoclonals was reason for commercial success of patented diagnostic kits is clearly erroneous, in view of evidence demonstrating that at least three years passed between time monoclonal antibodies were available in adequate supply and time patent holder began selling its kits.

5. Claims -- Indefinite -- Chemical (§ 20.553)

Federal district court erred in holding that claims for monoclonal assay are indefinite because antibody affinity cannot be estimated with any consistency, since calculating affinity was known in art at time of filing, and since such claims reasonably apprise those skilled in art and are as precise as subject matter permits, even though calculations are not precise or "standard."

Particular patents -- Assays

4,376,110, David and Green, Immunometric Assays Using Monoclonal Antibodies, holding of invalidity reversed.

Case History and Disposition:

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Appeal from District Court for the Northern District of California, Conti, J.; 227 USPQ 215 .

Action by Hybritech Incorporated, against Monoclonal Antibodies, Inc., for patent infringement. From judgment for defendant, plaintiff appeals. Reversed and remanded. Attorneys:

Douglas E. Olson, and Lyon & Lyon, both of Los Angeles, Calif. (James W. Geriak and Bradford J. Duft, both of Los Angeles, Calif., on the brief) for appellant.

David J. Brezner, and Flehr, Hohback, Test, Albritton & Herbert, both of San Francisco, Calif. (Barry E. Britschneider and Herbert I. Cantor, both of Washington, D.C., of counsel) for appellee.

Judge:

Before Rich, Davis, and Smith, Circuit Judges.

Opinion Text

Opinion By:

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Rich, Circuit Judge.

This appeal is from the August 28, 1985, decision of the United States District Court for the Northern District of California, 623 F.Supp. 1344, 227 USPQ 215, in favor of defendant Monoclonal Antibodies, Inc. (Monoclonal) holding that all 29 claims of plaintiff's patent No. 4,376,110 entitled "Immunometric Assays Using Monoclonal Antibodies" ('110 patent), issued to Dr. Gary S. David and Howard E. Greene and assigned to Hybritech Incorporated (Hybritech), are invalid as anticipated under 35 USC 102(g), for obvious

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ness under §103, and under §112 first and second paragraphs. We reverse and remand.

Background

Vetebrates defend themselves against invasion by microorganisms by producing antibodies, proteins which can complex with the invading microorganisms and target them for destruction or removal. In fact, any foreign molecule of sufficient size can act as a stimulus for antibody production. Such foreign molecules, or antigens, bear particular sites or epitopes that represent antibody recognition sites. B cell lymphocytes, the cells that actually produce antibodies, recognize and respond to an epitope on an antigen by reproducing or cloning themselves and then producing antibodies specific to that epitope. Even if the antigen is highly purified, the lymphocytes will produce antibodies specific to different epitopes on the antigen and so produce antibodies with different specificities. Furthermore, because the body is exposed to many different antigens, the blood of a vertebrate will contain antibodies to many different antigenic substances.

Scientists and clinicians have long employed the ability of antibodies to recognize and complex with antigens as a tool to identify or label particular cells or molecules and to separate them from a mixture. Their source of antibodies has been primarily the serum separated from the blood of a vertebrate immunized or exposed to the antigen. Serum, however, contains a mixture of antibodies directed to numerous antigens and to any number of epitopes on a particular antigen. Because such a mixture of antibodies arises from many different clones of lymphocytes, it is called "polyclonal."

Recent technological advances have made it possible to isolate and cultivate a single clone of lymphocytes to obtain a virtually unlimited supply of antibodies specific to one particular epitope. These antibodies, known as "monoclonal antibodies" because they arise from a single clone of lymphocytes, are produced by a relatively new technology known as the hybridoma. Hybridomas are produced by fusing a particular cancer cell, the myeloma cell, with spleen cells from a mouse that has been injected or immunized with the antigen. These fusions are isolated by transferring them to a growth fluid that kills off the unfused cancer cells, the unfused spleen cells dying off by themselves. The fused hybrid spleen and myeloma cells, called hybridomas, produce antibodies to the antigen initially injected into the mouse. The growth fluid containing the hybridomas is then diluted and put into individual test tubes or wells so that there is only one hybridoma per tube or well. Each hybridoma then reproduces itself and these identical hybridomas each produce identical monoclonal antibodies having the same affinity and specificity. In this way, a virtually unlimited supply of identical antibodies is created, directed to only one epitope on an antigen rather than, as with polyclonal antibodies, to many different epitopes on many different antigens.

In addition to the specificity of antibodies to particular epitopes discussed above, antibodies also have a characteristic "sensitivity," the ability to detect and react to antigens. Sensitivity is expressed in terms of "affinity:" the greater an antibody's ability to bind with a particular antigen, the greater the antibody's affinity. The strength of that antibody-antigen bond is in part dependent upon the antibody's "affinity constant," expressed in liters per mole, for the antigen.

Immunoassays, the subject matter of the '110 patent are diagnostic methods for determining the presence or

amount of antigen in body fluids such as blood or urine by employing the ability of an antibody to recognize and bind to an antigen. Generally, the extent to which the antibody binds to the antigen to be quantitated is an indication of the amount of antigen present in the fluid. Labelling the antibody or, in some cases, the antigen, with either a radioactive substance, I 125, or an enzyme makes possible the detection of the antibody-antigen complex. In an extreme case, where the fluid sample contains a very low level of the antigen, binding might not occur unless the antibodies selected or "screened" for the procedure are highly sensitive.

In the case of a "competitive" immunoassay, a labelled antigen reagent is bound to a limited and known quantity of antibody reagent. After that reaction reaches equilibrium, the antigen to be detected is added to the mixture and competes with the labelled antigen for the limited number of antibody binding sites. The amount of labelled antigen reagent displaced, if any, in this second reaction indicates the quantity of the antigen to be detected present in the fluid sample. All of the antigen attached to the antibody will be labelled antigen if there is no antigen in the test fluid sample. The advantage of this method is that only a small amount of antibody is needed, its drawback, generally, that the system must reach equilibrium, and thus produces results slowly.

In the case of a "sandwich" assay, otherwise known as an immunometric assay, the latter being a term coined by Dr. Lawton Miles in 1971, a quantity of unlabelled antibody reagent is bound to a solid support surface such as the inside wall of a test tube containing a complex of the fluid sample containing the

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antigen to be detected and a labelled *antibody* reagent. The result is an insoluble three part complex referred to as a sandwich having antibody bread and antigen filling. This figure is illustrative of the sandwich concept:
Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

The advantage of the sandwich assay is that it is fast and simple, its drawback that enormous quantities of antibodies are needed.

Hybritech

Hybritech, started in 1978 and joined thereafter by coinventors Green and Dr. David, has, since 1979, been in the business of developing diagnostic kits employing monoclonal antibodies that detect numerous antigens and thus a broad range of conditions such as pregnancy, cancer, growth hormone deficiency, or hepatitis. Examples of antigens include influenza viruses, immunoglobulin E (IgE) which indicates allergic reaction, human chorionic gonadotropin (HCG) which indicates pregnancy, and prostatic acid phosphatase (PAP) which indicates prostate cancer, to name a few. Dr. Adams, a business-experienced scientist, joined the company in May 1980 as head of research and development. The '110 patent, application for which was filed August 4, 1980, issued March 8, 1983, with claims defining a variety of sandwich assays using monoclonal antibodies. Claim 19, apparently the broadest of the twenty-nine in the patent, is directed generally to a sandwich assay and reads (emphasis ours):

19. In an *immunometric assay* to determine the presence or concentration of an antigenic substance in a sample of a fluid comprising forming a ternary complex of a first labelled antibody, said antigenic substance, and a second antibody said second antibody being bound to a solid carrier insoluble in said fluid wherein the presence of the antigenic substance in the samples is determined by measuring either the amount of labelled antibody bound to the solid carrier or the amount of unreacted labelled antibody, *the improvement comprising* employing monoclonal antibodies having an affinity for the antigenic substance of at least about 10 8liters/mole for each of said labelled antibody and said antibody bound to a solid carrier.

Claim 1, directed particularly to a reverse sandwich assay, explained *infra*, reads:

1. A process for the determination of the presence of [sic, or] concentration of an antigenic

substance in a fluid comprising the steps:

- (a) contacting a sample of the fluid with a measured amount of a soluble first monoclonal antibody to the antigenic substance in order to form a soluble complex of the antibody and antigenic substance present in said sample, said first monoclonal antibody being labelled;
- (b) contacting the soluble complex with a second monoclonal antibody to the antigenic substance, said second monoclonal antibody being bound to a solid carrier, said solid carrier being insoluble in said fluid, in order to form an insoluble complex of said first monoclonal antibody, said antigenic substance and said second monoclonal antibody bound to said solid carrier;
- (c) separating said solid carrier from the fluid sample and unreacted labelled antibody;
- (d) measuring either the amount of labelled antibody; associated with the solid carrier or the amount of unreacted labelled antibody; and
- (e) relating the amount of labelled antibody measured with the amount of labelled antibody measured for a control sample prepared in accordance with steps (a)-(d), said control sample being known to be free of said anti-genic substance, to determine the presence of antigenic substance in said fluid sample, or relating the amount of labelled antibody measured with the amount of labelled antibody measured for samples containing known amounts of antigenic substance prepared in accordance with steps (a)-(d) to determine the concentration of antigenic substance in said fluid sample, the first and second monoclonal antibodies having an affinity for the antigenic substance of at least about 10⁸ liters/mole.

The District Court Decision

Hybritech sued Monoclonal March 2, 1984, for damages and an injunction alleging that the manufacture and sale of Monoclonal's diagnostic kits infringed the '110 patent. Trial without a jury began on August 5, 1985, and concluded August 23, 1985, thirty witnesses having been heard and over 2,000 pages of transcript generated. The district court produced the reported opinion, findings, and con

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clusions, which use nearly verbatim Monoclonal's *pre-trial* brief and *pre-trial proposed* findings of fact and conclusions of law, in three days, in support of the judgment now on appeal.

The district court held that the claimed subject matter of the '110 patent was neither conceived nor actually reduced to practice before May 1980, and was anticipated under §102(g) by the actual reduction to practice of the invention by Drs. Uotila and Ruoslahti at the La Jolla Cancer Research Foundation (LJCRF) as early as November of 1979 and by the actual reduction to practice of the invention by Drs. Oi and Herzenberg (Oi/Herzenberg work) at the Stanford University Laboratory as early as July 1978, later published in December of 1979.

The district court also held the claims of the '110 patent invalid for obviousness from the Oi/Herzenberg work in view of (1) a February 1979 article by M. E. Frankel and W. Gerhard (Frankel article) which discloses high-affinity monoclonal antibodies, and apparently in view of numerous other references including (2) the work of Nobel Prize winners G. Kohler and C. Milstein disclosing a Nobel Prize-worthy method for producing monoclonal antibodies in vitro (outside the body) published in an August 7, 1975, article; (3) U.S. Patent No. 4,244,940 issued to Jeong et al. disclosing a simultaneous polyclonal assay (Jeong), U.S. Patent No. 4,098,876 to Piasio et al. disclosing a reverse polyclonal sandwich assay (Piasio), U.S. Patent No. 4,016,143 to Schurrs et al. disclosing a forward polyclonal sandwich assay (Schurrs); (4) a July 1979 publication by A. C. Cuello et al. disclosing the use of monoclonal antibodies in competitive assays; and (5) eight articles dated between January 1979 and March 6, 1980, "predicting" that monoclonal antibodies would be used in future immunoassays.¹

The district court also invalidated the patent on various grounds based on 35 USC 112, first and second paragraphs, as hereinafter discussed.

A. The References

1. Kohler and Milstein's Nobel Prize-Winning Work: Producing Monoclonal Antibodies In Vitro For the First Time

In early immunoassay work, polyclonal antibodies produced in vivo (in the body) in mice were used to bind with the antigen to be detected in the body fluid sample. Mice were immunized by injection with antigen so that the lymphocytes in their bodies produced antibodies that attacked the injected antigen. Those polyclonal antibodies were withdrawn from the animal's blood and used in immunoassays. The major problem was that when the mice's immune systems changed or the mice died, the antibodies changed or died too; supply was limited and uncertain.

As the examiner was aware, Kohler and Milstein developed a technique not only for producing antibodies in vitro, independent of a living body, thus eliminating dependence on a particular animal, but for in vitro production of monoclonal antibodies by hybridomas, discussed in the Background section, supra.

Given that sandwich assays require enormous amounts of antibodies, companies like appellant and appellee, which utilize monoclonal antibodies for sandwich assays, would not be in business were it not for the work of Kohler and Milstein.

2. The Work of Drs. Ruoslahti, Uotila, and Engvall at the La Jolla Cancer Research Foundation (LJCRF) in 1979 and 1980

Dr. Ruoslahti performed mostly competitive immunoassays using polyclonal antibodies to alphafetoprotein (AFP) antigens at the City of Hope since 1970. Dr. Uotila joined him in late 1978 to perform immunoassays using monoclonal antibodies to AFP. After producing monoclonal antibodies to AFP and performing competitive radio immunoassays (RIA -- a competitive assay that uses a radioactive label) with monoclonal antibodies at the City of Hope in mid-1979, Drs. Ruoslahti, Uotila and Engvall left LJCRF.

In the fall of 1979, September or October according to Dr. Uotila, discussion and work began on using monoclonal antibodies to AFP in a sandwich assay. Dr. Uotila, the principal researcher in this particular endeavor, generated six notebooks while at the City of Hope and LJCRF. The next-to-last page of notebook four contained a note to Dr. Uotila from Dr. Ruoslahti reading:

Sometime you should enzyme label a good monoclonal antibody so that you can set up a sandwich assay. If you use two monoclonal antibodies, you may be able to do the assay with a single incubation, since the monoclonal antibodies are likely to be

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directed against different determinants and not compete with one another.

Although Dr. Uotila's notebook pages were, for the most part, unsigned, undated, and uncorroborated, Dr. Ruoslahti's testimony, placed the date of this note at about October 1979 by referring to the first pages of notebook five which were dated in early November 1979. Dr. Ruoslahti testified that one curve on one graph on page 43D of notebook five showed a successful simultaneous sandwich assay using monoclonal antibodies about November 5, 1979, although no data supporting that graph could be found elsewhere in the notebook. He further testified that the affinity of the monoclonal antibodies used for that test was not calculated until 1980 but that the raw data necessary for that calculation was generated in 1979.

Dr. Uotila stated in her deposition (she did not testify at trial) that she started work on a sandwich assay using monoclonal antibodies between October 4 and the end of that month, 1979, and that she could not remember the procedure used nor was there enough information in her notebook, including page 43D, to refresh her memory. She did remember, although she continued work on this assay because the tests did not yield repeatedly good curves without which she would not publish her work, that the assay on page 43D was successful. Dr. Engvall

testified about a discussion of Dr. Uotila's monoclonal antibody work with her while at the City of Hope and about first performing a sandwich assay after arriving at LJCRF in 1979.

3. *The Work of Drs. Oi and Herzenberg at the Stanford University Laboratory in 1978 Published in December 1979*

Drs. Oi and Herzenberg used monoclonal antibodies to "map" epitopes or determine the number and location of different antibody binding sites on a known quantity of IgE antigen by attaching to it an antibody bound to a carrier and exposing that antigen to other monoclonal antibodies. The antibodies either attached to epitopes on the antigen or were blocked from doing so by the other monoclonal antibodies, depending on the location and number of epitopes; if the epitopes on the antigen were too close together and the number of antibodies too great, few antibodies would bind to the antigen. Hybritech points out that both Dr. Herzenberg and Dr. Oi testified that *their work did not involve determining the presence or quantity of antigen*, that they had no idea what the affinities of the monoclonal antibodies used were, and that those values were never calculated.

One unsigned, unwitnessed page from three large laboratory notebooks, which Hybritech argues is insufficient because it does not identify the chemical reagents or protocol used, was relied on by Monoclonal to establish actual reduction to practice of the Oi/Herzenberg work in 1978 to establish a case of §102(g) prior invention by another. The district court agreed with Monoclonal that the Oi/Herzenberg work anticipated the claimed invention and, in addition, combined this work with the Frankel publication to hold that the claimed subject matter was obvious under §103.

4. *The Frankel Article: Monoclonal Antibodies Having Affinities of 10 9liters/mole*

Frankel describes an RIA (radioimmunoassay) method for the rapid determination of affinity constants for monoclonal antibodies produced from hybridomas. The article states that the assay used is applicable only to antibodies with binding constants of about 10 10liters/mole and discloses the binding constants for antibodies to several closely related strains of influenza virus.

The district court found that Frankel disclosed monoclonal antibodies having the affinity constants claimed in the '110 patent, 10 8to over 10 9liters/mole.

5. *The Cuello Article and the Jeong, Piasio, and Schurr Patents Considered by the Examiner*

Cuello, dated July 1979, states that it describes the usefulness of monoclonal antibodies in the characterization and localization of neurotransmitters such as Substance P, a peptide clearly associated with the transmission of primary sensory information in the spinal cord. The article discloses producing monoclonal antibodies from hybrid myelomas (hybridomas), their use in conventional radioimmunoassay techniques, and the benefits from doing so which flow from the ability to derive permanent cell lines capable of continuous production of highly specific antibodies.

The district court found that the examiner twice rejected all of the claims of the '110 patent based on Cuello alone or in combination with the Jeong, Piasio, and Schurr references which disclose various sandwich assays using polyclonal antibodies. The court also found that the examiner allowed the claims after they were amended to include the 10 8affinity limitation and after Richard Bartholomew, a Hybritech employee, submitted an affidavit alleging the advantages of using monoclonal rather than polyclonal antibodies in sandwich assays.

Apparently based on the testimony of Monoclonal's expert witness Judith Blakemore, a named inventor of the Jeong patent, manager of antibody programs at Bio-Rad Laboratories from 1975 to 1982, and currently manager of monoclonal antibody therapeutics at Cetus Corporation, a Hybritech competitor in immunoassay diagnostics, the district court stated

that the "reasons for allowance were not well-founded because (1) the alleged advantages were expected as naturally flowing from the well-known natural characteristics of monoclonal antibodies . . . ; (2) . . . were not significant . . . ; or (3) were at best minor," although they were "argued to the examiner as if they were" important. These were Monoclonal's words from its pretrial submission adopted by the court.

6. The References That "Predicted" the Use of Monoclonal Antibodies in Immunoassays

The district court stated, again in Monoclonal's words, that "it is of the utmost importance" that the advantages of monoclonal antibodies were "predicted by a number of authorities," eight to be exact, not important enough to list here, after the Kohler and Milstein discovery and after monoclonal antibodies became available.

B. The Claimed Subject Matter of the '110 Patent

Hybritech argues that the district court's determination that there is no credible evidence of conception or reduction to practice of the '110 invention before May 1980 is error because Dr. David's laboratory notebooks, Nos. 21 and 24, clearly show successful sandwich assays using monoclonal antibodies in August, September, and October of 1979. At the least, argues Hybritech, the invention was conceived in January of 1979, long before Drs. Ruoslahti, Engvall, and Uotila began work on a sandwich assay using monoclonal antibodies, and diligence was thereafter exercised until constructive reduction to practice occurred by the filing of the '110 patent application on August 4, 1980.

Dr. David and Greene testified that pages 2118 to 2122 of Dr. David's notebook, dated January 4, 1979, and witnessed January 30, 1979, disclose the generic conception of the invention in the context of the physical support structure used to carry out a sandwich assay, and Dr. David testified on redirect that (1) Page 1128 of notebook 21, dated May 27, 1979, recorded an early attempt at a sandwich assay that failed, (2) on August 3, 1979, as recorded at page 1166, a sandwich assay using monoclonal antibody 068 attached to a solid carrier, a radio-labelled 068 antibody, and a hepatitis antigen from an Abbott Labs polyclonal competitive assay kit was successfully performed, and (3) a sandwich assay using a bound 259 antibody, a radio-labelled 068 antibody, and a hepatitis antigen was successfully performed on September 21, 1979. Hybritech also urges that work in October 1979 directed to determining whether certain monoclonal antibodies were recognizing the same or different determinants, was a reduction to practice.

Monoclonal points out that these notebook pages do not expressly state that monoclonal antibodies of 10⁸liters/mole affinity were used in a sandwich assay and that the May, August, and September notebook entries were not witnessed until about the time Dr. Adams, experienced in patent matters, joined Hybritech and advised its researchers on properly recording laboratory work. They therefore claim that actual reduction to practice was not shown before May 1980.

OPINION

I. Review Under Rule 52(a) Fed.R. Civ. P.

Rule 52(a) "ensures care in the preparation of an opinion . . . and provides appellate courts with the benefit of the District Court's insights into a case," *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309 318, 227 USPQ 766, 772 (Fed. Cir. 1985) (Harvey, Senior District Judge, concurring) by requiring a district court to "find the facts specially and state separately its conclusions of law thereon." With the exception of the first eight paragraphs, the first half of the district court's opinion here is Monoclonal's *pretrial* brief and the last three pages of the opinion are Monoclonal's *pretrial* findings of fact and conclusions of law. The district court adopted the above documents virtually verbatim, with the exception of portions of each concerning inequitable conduct and noninfringement, apparently without inviting a response from Hybritech, resulting in a repetitious (as the district court admitted in the opinion), sometimes internally inconsistent, and hard to follow opinion that presents us with a difficult task in gleanings the basis for many of the conclusions. For some of the findings, submitted before trial, no supporting evidence was introduced at trial.

The Supreme Court, in *Anderson v. City of Bessemer City, N.C.*, 105 S.Ct. 1504 (1985), strongly criticized the practice of "verbatim adoption of findings of fact prepared by prevailing parties, particularly when those findings have taken the form of conclusory statements unsupported by citation to the record." *Anderson*, supra at 1511. This court also has cautioned against the adoption of findings, especially when proposed by a party before trial, as here, and stated that the likelihood of clear error in those findings increases in such a situation. *Lindemann Maschinenfabrik v. American Hoist and Derrick*, 730 F.2d 1452, 1457, 221 USPQ 481, 485 (Fed. Cir. 1984).

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Notwithstanding our misgivings about whether the findings in this case, prepared before any evidence was introduced, satisfy the objectives of Rule 52(a) -- a carefully prepared opinion providing the reviewing court with the benefit of the district court's *reasoned insights* into the case -- those findings are the district court's and may be reversed only if clearly erroneous. See *Anderson*, supra, at 1511; *Lindemann*, 730 F.2d at 1457, 221 USPQ at 485.

"A finding is clearly erroneous when, although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed." *United States v. United States Gypsum Co.*, 333 U.S. 364, 395 (1948). "This standard plainly does not entitle a reviewing court to reverse the finding of the trier of fact simply because it is convinced that it would have decided the case differently." *Anderson*, supra, at 1511. In other words, "if the district court's account of the evidence is plausible in light of the record viewed in its entirety" or "where there are two permissible views of the evidence," the factfinder cannot be clearly erroneous. *Anderson*, supra, at 1511 (quoting *United States v. Yellow Cab Co.*, 338 U.S. 338, 342 (1949)). This is so, stated the Court in dictum, see *Anderson*, supra, at 1516 (Blackmun, J., concurring), even when the district court's findings rest on physical or documentary evidence or inferences from other facts and not on credibility determinations. See also Rule 52(a) Fed.R. Civ. P. (as amended Aug. 1, 1985). If the latter are involved, "Rule 52 demands even greater deference to the trial court's findings" but a trial judge may not "insulate his findings from review by denominating them credibility determinations"; if documents or objective evidence contradict the witness' story, clear error may be found even in a finding purportedly based on a credibility determination. *Anderson*, supra, at 1512-13. We proceed in light of all these principles.

II. Presumption of Validity

Under 35 USC 282, a patent is presumed valid, and the one attacking validity has the burden of proving invalidity by clear and convincing evidence. See, e.g., *American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1360, 220 USPQ 763, 770 (Fed. Cir. 1984). Notwithstanding that the introduction of prior art not before the examiner may facilitate the challenger's meeting the burden of proof on invalidity, the presumption remains intact and on the challenger throughout the litigation, and the clear and convincing standard does not change. See, e.g., *Jervis B. Webb Co. v. Southern Systems, Inc.*, 742 F.2d 1388, 1392 & n.4, 222 USPQ 943, 945 & n.4 (Fed. Cir. 1984). The only indication that the district court recognized the presumption of validity and its proper application was its statement that "[t]he key issue in this case is whether the defendant has overcome the presumption of nonobviousness." That statement, however, speaks only part of the truth; the presumption of validity goes to validity of the patent in relation to the patent statute *as a whole*, not just to nonobviousness under Section 103.

III. Prior Invention of Another, 35 USC 102(g)

Section 102(g) states that a person shall be entitled to a patent unless "before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it." Section 102(g) "relates to prior inventorship by another in this country" and "retains the rules governing the determination of priority of invention" *Kimberly-Clark Corp. v. Johnson & Johnson*, 745 F.2d 1437, 1444, 223 USPQ 603, 606 (Fed. Cir. 1984) (quoting P.J. Federico, *Commentary on the New Patent Act*, 35 USCA page 1, at 19 (1954)). Section 102(g) says: "In determining priority of invention there shall be considered not only the respective dates of

conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other."

Reduction to practice, and conception as well, is a legal determination subject to review free of the clearly erroneous standard. *Barmag Barmer Maschinenfabrik AG v. Murata Machinery, Ltd.*, 731 F.2d 831, 837, 221 USPQ 561, 565-66 (Fed. Cir. 1984); *D.L. Auld Co. v. Chroma Graphics Corp.*, 714 F.2d 1144, 1151, 219 USPQ 13, 18 (Fed. Cir. 1983). Findings of fact supporting that legal conclusion, are, of course, reviewed under the clearly erroneous standard.

Conception is the "formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice." 1 *Robinson On Patents* 532 (1890); *Coleman v. Dines*, 754 F.2d 353, 359, 224 USPQ 857, 862 (Fed. Cir. 1985). Actual reduction to practice requires that the claimed invention work for its intended purpose, *see, e.g., Great Northern Corp. v. Davis Core & Pad Co.*, 782 F.2d 159, 165, 228 USPQ 356, 358, (Fed. Cir. 1986), and, as has long been the law, constructive reduction to practice occurs when a patent application on the claimed invention is filed. *Weil v. Fritz*, 572 F.2d 856, 865 n.16,

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196 USPQ 600, 608 n.16 (CCPA 1978) (citing with approval *Automatic Weighing Machine Co. v. Pneumatic Scale Corp.*, 166 F. 288 (1st Cir. 1909)).

[1] After a review of the record in its entirety, including the numerous corroborating Hybritech laboratory notebooks, internal documents, and pertinent testimony, we hold clearly erroneous the district court's finding that there is no clear or corroborated evidence "with regard to when before May 1980, the idea of actually using monoclonals in sandwich assays" was conceived or, more properly, of when the *claimed invention* was conceived, and therefore reverse the court's holding, as a matter of law, that Hybritech's inventors did not conceive the claimed invention before May 1980.

Hybritech's claim of conception, generally, is evidenced by the sometimes sparsely documented work of a start-up company whose first small advances evolved into the myriad activities of a mature company with efforts directed toward developing the claimed invention by first employing the Kohler and Milstein technology to produce the necessary monoclonal antibodies and using those antibodies in diagnostic sandwich assay kits. There is no doubt that exploiting monoclonal antibodies for use in sandwich assays was one of the major objectives of Hybritech. In a letter to Pharmacia Fine Chemicals dated April 26, 1979, Greene, in responding to Pharmacia's interest in Hybritech's products, outlined the latter's "efforts to bring the exciting new hybridoma technology into routine medical use" and its exploration of "several intriguing concepts for which monoclonals may open up new immunodiagnostic techniques heretofore infeasible with animal serums." Although company minutes in early 1979 contain little about the claimed subject matter and some of the discussions thereon, such as Greene's and Dr. Adams' conversation about monoclonal sandwich assays when the former was trying to woo Dr. Adams to join Hybritech were unrecorded, the Hybritech laboratory notebooks and the nature of Hybritech's research program fully corroborate the testimonial evidence of conception and thus clearly support our holding that Hybritech conceived the claimed invention before LJCRF.

Dr. David's January 1979 notebook describes, in detail, as explained by Greene and Dr. David at trial, a nylon apparatus that undoubtedly could be used for performing a sandwich assay using monoclonal antibodies, although Dr. David testified on cross-examination that at that time Hybritech had not yet developed any monoclonal antibodies, including attaching one of the reagents to a solid carrier ring, contacting that ring with a fluid sample in a microtiter plate well, adding a labelled reagent to the well after rinsing, and then "counting" or measuring the amount of either the labelled or unlabelled reagent after a prescribed time and second rinsing. The notebook then describes the procedure for detecting an antibody "(a-x)" to an antigen "(x)" complete with diagrams and text, both illuminated by Dr. David at trial. The notebook further states, "Alternatively, if one wished to quantitate an

antigen, y, the identical procedure would be followed, except that reagents would be reversed, i.e. the reaction would be:" and there follows a clear illustration of an antibody attached to a solid carrier reacting with an antigen to form a complex, and that complex reacting with a second labelled antibody. The notebook was signed by Dr. David on January 4, 1979, and witnessed and signed on January 30 of the same year by Dr. Curry, the first cell biologist hired at Hybritech to set up the hybridoma production program.

Dr. David testified on direct that monoclonal antibodies were developed in the following months: antigens were purchased from outside sources and purified before being injected into mice; the spleen cells from those mice were fused with myelomas; and the resultant hybridomas were separated into well plates for development, and a radioimmunoassay procedure was carried out to determine the affinity of the antibodies.

The May 1979 failed sandwich assay, witnessed in May 1980, corroborates Dr. David's testimony that a polyclonal antibody bound to a solid carrier and a labelled monoclonal antibody were used in a sandwich assay with an antigen from Abbott Labs' Ausria polyclonal diagnostic kit for hepatitis. No binding was detected.

Dr. David testified about the experiment documented in the August 1979 notebook, a sandwich assay with a hepatitis antigen from an Abbott Labs Ausria kit with two Hybritech 068 monoclonal antibodies, one attached to a solid carrier bead and the other labelled; the purpose of the experiment was to quantitate the antigen. The notebook corroborates Dr. David's testimony that the test was positive and lists the counts per minute of the labelled antibody. Defendant Monoclonal's expert Ciotti testified about this experiment:

Also, of course, it is limited to -- it is limited to hepatitis antigen. And without a generic conception, it would just be merely a -- if it did work for its intended purpose -- which I would assume for purposes of discussion -- *it would be a reduction to practice of one embodiment*. And without a corresponding generic conception, I don't think it would be held to be the making of the invention in

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terms of, for instance, in claim 19. [Emphasis ours.]

Dr. David further testified that the September 21, 1979, record in David's notebook, witnessed months later, shows a reverse sandwich assay using a bound 259 monoclonal antibody and a labelled 068 monoclonal antibody with a hepatitis antigen with results confirmed by a dose response curve.² Hybritech further alleges that a laboratory notebook page dated October 1979 is a reduction to practice of the claimed invention but fails to cite any related testimony or other evidence in support thereof.

Finally, the record shows that the claimed affinity limitation "of at least about 10 8liters/mole" was determined and appreciated during the course of the development of the claimed subject matter. Dr. David and Dr. Adams separately testified that the screening procedures used by Hybritech ensured that only monoclonal antibodies having at least 10 8liters/mole affinity would be used in assays. An October 1979 internal memorandum from Greene to the staff states "To improve comparisons we will express all affinities to the base ten to the eighth which represents the lower end of the useable range."

We are left with the definite and firm conviction that a mistake has been committed because the district court's account of the evidence that "there was no credible evidence of conception before May 1980" is insupportable. There is such evidence. The laboratory notebooks, alone, are enough to show clear error in the findings that underlie the holding that the invention was not conceived before May 1980. That some of the notebooks were not witnessed until a few months to one year after their writing does not make them incredible or necessarily of little corroborative value. Admittedly, Hybritech was a young, growing company in 1979 that failed to have witnesses sign the inventors' notebooks contemporaneously with their writing. Under a reasoned analysis and evaluation of all pertinent evidence, however, we cannot ignore that Hybritech, within a reasonable time thereafter, prudently had researchers other than those who performed the particular experiments witness the notebooks in response to Tom Adams' advice. The notebooks clearly show facts underlying and contemporaneous with conception of the

claimed invention and in conjunction with the testimony of Dr. David and Greene, and others, are altogether legally adequate documentary evidence, under the law pertaining to conception, of the formation in the minds of the inventors of a definite and permanent idea of the complete and operative invention as it was thereafter applied in practice. We thus are not moved by Monoclonal's argument that the findings of fact underlying conception are based on credibility determinations and are more sacrosanct than usual. *See Anderson*, supra, at 1512-13.

1. LJCRF Is Not Prior Art

Hybritech laboratory notebooks and the uncontradicted testimony of Dr. David and Mr. Greene show that development of the claimed invention proceeded diligently through the rest of 1979 and 1980, there being absolutely no evidence of record nor even argument by Monoclonal that Hybritech was not diligent in its efforts to reduce to practice the claimed invention during the period January 1979 to the '110 application filing date of August 4, 1980. We therefore hold as a matter of law that Hybritech's conception, which was before LJCRF conceived the claimed invention, coupled by diligence to its constructive reduction to practice by the filing of the '110 application, entitle Hybritech to priority over LJCRF. *See* 35 USC 102(g). The work of LJCRF is therefore not prior art.

We also note that there is inadequate factual basis for the district court's holding that LJCRF reduced the claimed invention to practice as early as November 1979 because the only evidence that corroborates the testimony of Ruoslahti, Uotila, and Engvall is the note from Ruoslahti to Uotila, see section A, 2, supra, which indisputably is not the claimed invention, and the *one* curve from *one* graph from only one page, 43D, of the six Uotila notebooks. After a reasoned examination, analysis, and evaluation of this pertinent evidence we conclude that it falls far short of showing the "formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice," *see Coleman*, 754 F.2d at 359, 224 USPQ at 862, and therefore is legally inadequate to support even a holding of *conception* of the claimed invention by LJCRF personnel in 1979.

(1) It is undisputed that page 43D was not signed, witnessed, or dated; (2) the deposition testimony of Uotila was that she could not remember the procedure used to arrive at the dose-response curve on page 43D and there was not enough information in her notebook to refresh her memory; (3) the testimony of

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Ruoslahti was that he could find *no* data in the notebook supporting that graph, none of the *later* graphs shown there represented successful assays and that "especially after this was done, we ran into more severe problems. And it took us a while to do away with the problems;" (4) Ruoslahti also testified that they never determined, in 1979, the affinities of the monoclonal antibodies they used, and that the title of page 43D had been altered at some point - the word "inhibition" had been crossed out and "sandwich" written in; and (5) the testimony of Engvall was that there was nothing about the shape of those curves which indicates that they were sandwich assays. We also note, as evidence bearing upon the credibility of Ruoslahti's testimony (that LJCRF actually reduced the claimed invention to practice in 1979), that when LJCRF attempted to provoke an interference in the PTO with Hybritech based on the U.S. filing of an application that was the counterpart to a Swedish application disclosing similar subject matter, LJCRF could not demonstrate even a *prima facie* reduction to practice prior to Hybritech's August 4, 1980, filing date. During that proceeding, the earliest dates Ruoslahti set down on paper to support conception and reduction to practice were in 1980.

2. The Work of Oi/Herzenberg Is Not the Claimed Invention

[2] It is axiomatic that for prior art to anticipate under §102 it has to meet every element of the claimed invention, and that such a determination is one of fact. *See, e.g., Lindemann*, supra, 730 F.2d at 1458, 221 USPQ at 485; *Great Northern Corp. v. Davis Core & Pad Co.*, 782 F.2d 159, 165, 228 USPQ 356, 358 (Fed. Cir. 1986). Section 102(g) upon which the district court relied is one type of "anticipation," i.e., prior invention by another of

the same invention. Drs. Oi and Herzenberg testified that their work did not involve detecting the presence of or quantitating antigen but a determination of the number and location of epitopes on a *known* quantity of antigen. Although this work did involve a sandwich assay to the extent that an antigen was sandwiched between two monoclonal antibodies, it is clear that the similarity between that work and the claimed invention goes no further. Furthermore, both doctors testified that they did not know the affinities of the antibodies that were used in their mapping work and in fact never calculated them. Ciotti, Monoclonal's expert, testified that the 10⁸ affinity limitation cannot be found anywhere in the Oi/Herzenberg work. Again we are left with a definite and firm conviction that a mistake was made because that work does not meet every element of the claimed invention. The district court's finding to the contrary is clearly erroneous.

We note that the district court, in also holding the patent invalid under §103, next considered, combined the Oi/Herzenberg work with the Frankel reference, one justifiable inference therefrom being that the court recognized that Frankel discloses a claim *element* that Oi/Herzenberg does not, namely, at least about 10⁸ liters/mole affinity.

IV. Obviousness, 35 USC 103

A section 103 obviousness determination -- whether the claimed invention *would have been* (not "would be" as the court repeatedly stated because Monoclonal's pretrial papers used that improper language) obvious at the time the invention was made is reviewed free of the clearly erroneous standard although the underlying factual inquiries -- scope and content of the prior art, level of ordinary skill in the art,³ and differences between the prior art and the claimed invention -- integral parts of the subjective determination involved in §103, are reviewed under that standard. Objective evidence such as commercial success, failure of others, long-felt need, and unexpected results must be considered *before* a conclusion on obviousness is reached and is not merely "icing on the cake," as the district court stated at trial. *See Lindemann, supra*, 730 F.2d at 1461, 221 USPQ at 488; *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Kansas Jack, Inc. v. Kuhn*, 719 F.2d 1144, 219 USPQ 857 (Fed. Cir. 1983); *W.L. Gore & Associates v. Garlock Inc.*, 721 F.2d 1540, 220 USPQ 303, 314 (Fed. Cir. 1983).

1. The Eight Articles "Predicting" Widespread Use of Monoclonal Antibodies

Before discussing the more pertinent references in this case -- the Oi/Herzenberg and Frankel works -- we cull the other prior art references relied on by the trial court.

[3] First, the latest four of the eight articles that the court stated were of the "utmost importance" because they "predicted" that the breakthrough in production of monoclonal antibodies by Kohler and Milstein would lead to widespread use of monoclonal antibodies in

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immunoassays are neither 102(a)/103 nor 102(b)/103 prior art because they are dated between late 1979 and March 6, 1980, well after the date of conception and within one year of the filing date of the '110 patent.

The earliest four of the eight articles, on the other hand, although clearly prior art, discuss *production* of monoclonal antibodies -- admittedly old after Kohler and Milstein showed how to produce them -- but none discloses sandwich assays. At *most*, these articles are invitations to try monoclonal antibodies in immunoassays but do not suggest how that end might be accomplished. To the extent the district court relied upon these references to establish that it would have been *obvious to try* monoclonal antibodies of 10⁸ liters/mole affinity in a sandwich immunoassay that detects the presence of or quantitates antigen, the court was in error. *See Jones v. Hardy*, 727 F.2d 1524, 1530, 220 USPQ 1021, 1026 (Fed. Cir. 1984) ("Obvious to try" is improper consideration in adjudicating obviousness issue).⁴

2. The Kohler and Milstein Work, the Cuello Article and the Jeong, Piasio, and Schurr Patents Considered by the Examiner

The district court's finding that Kohler and Milstein developed a method for producing monoclonal antibodies

in vitro is correct, but that finding proves no more; although it made possible all later work in that it paved the way for a supply of monoclonal antibodies, it indisputably does not suggest using monoclonal antibodies in a sandwich assay in accordance with the invention claimed in the '110 patent.

The Cuello reference discloses monoclonal antibodies but not in a sandwich assay. The competitive assay in Cuello, moreover, uses only one monoclonal antibody and thus in no way suggests the claimed invention wherein a ternary complex of two monoclonal antibodies and an antigen form a sandwich. Furthermore, the court did not explain how this art, by itself or in combination with any of the other art, suggests the claimed subject matter and thus why that combination would have been obvious. We are of the opinion that it does not.

The district court correctly found that the use of polyclonal antibodies in sandwich assays was well known. The Jeong patent discloses the use of polyclonal antibodies in a simultaneous sandwich assay, with no suggestion that monoclonal antibodies be so used. It is prior art by virtue of §102(e), application for the patent having been filed September 5, 1978, its effective date as a reference. The Piasio patent, disclosing a reverse sandwich assay using polyclonal antibodies, and Schurrs, disclosing a forward sandwich assay using the same, both §102(a) prior art, are likewise devoid of any suggestion that monoclonal antibodies can be used in a similar fashion.

3. The Oi/Herzenberg Work and the Frankel Article

Clearly, the most pertinent items of prior art not cited by the examiner are the Oi/Herzenberg work, as described in section A, 3, supra, and the Frankel article. As stated in the discussion of Prior Invention of Another (section III, 2, supra), the Oi/Herzenberg work involved mapping epitopes on a known quantity of antigen. It was not concerned with and does not disclose using monoclonal antibodies of at least 10⁸liters/mole affinity. Oi and Herzenberg testified that they did not know the affinity of the antibodies used, and Ciotti testified that nowhere in that work is there mention of monoclonal antibody affinity of at least 10⁸liters/mole. On this basis, we conclude that the Oi/Herzenberg work is qualitatively different than the claimed invention; the former is directed to mapping epitopes on a known quantity of antigen and the latter to determining the "presence or concentration of an antigenic substance in a sample of fluid" We disagree with Monoclonal that these are "essentially the same thing." Furthermore, it is perfectly clear that this work in no way suggests using monoclonal antibodies of the affinity claimed in the '110 patent. It is because of these differences between the Oi/Herzenberg work and the claimed invention that the fact that an antigen was sandwiched between two monoclonal antibodies in the course of Oi's and Herzenberg's work is not sufficient basis to conclude that the claimed invention would have been obvious at the time it was made to a person of ordinary skill in the art.

Likewise, a conclusion that the invention would have been obvious cannot properly be reached when the Oi/Herzenberg work is

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considered in view of the Frankel article. Frankel teaches a method for rapid determination of affinity constants for monoclonal antibodies, some of which clearly have affinities of the order defined by the claims, but does not in any way suggest using two of those antibodies in a sandwich to assay an antigen by forming a ternary complex of labelled antibody, the antigenic substance, and a bound antibody wherein the presence of the antigenic substance is determined by measuring either the amount of labelled antibody bound to a solid carrier or the amount of unreacted labelled antibody. The mere existence of prior art disclosing how to measure the affinity of high affinity monoclonal antibodies is insufficient to support a holding of obviousness. Hybritech's claims define a *process* that *employs* monoclonal antibodies, and does not merely claim antibodies of high affinity. In view of the fact that the Oi/Herzenberg work is not directed to an assay as claimed and does not disclose antibodies of at least 10⁸liters/mole affinity, and further that Frankel fails to suggest using such antibodies in a sandwich assay, the Frankel article does not compensate for the substantial difference between the Oi/Herzenberg work and the claimed subject matter, and therefore those references in combination cannot support a holding of obviousness.

4. Objective Evidence of Nonobviousness

[4] In one part of its opinion the court found that "the commercial success of the kits *may* well be attributed to the business expertise and acumen of the plaintiff's personnel, together with its capital base and marketing abilities" (emphasis ours) and later that "[w]here commercial success is based on the sudden availability of starting materials, in this instance the availability of monoclonal antibodies as a result of the Kohler and Milstein discovery, business acumen, marketing ability, and capital sources, no causal relationship is proven." (Citation omitted.)

i. Commercial Success: Hybritech's Diagnostic Kits Grabbed a Substantial Market Share

The undisputed evidence is that Hybritech's diagnostic kits had a substantial market impact. The first diagnostic kit sales occurring in mid-1981, sales increased seven million dollars in just over one year, from \$6.9 million in-1983 to an estimated \$14.5 million in 1984; sales in 1980 were nonexistent. Competing with products from industry giants such as Abbott Labs, Hoffman LaRoche, Becton-Dickinson, and Baxter-Travenol, Hybritech's HCG kit became the market leader with roughly twenty-five percent of the market at the expense of market shares of the other companies. Its PAP kit ranks second only to a product sold by Dupont's New England Nuclear, surpassing products from Baxter-Travenol, Abbott, and others. Hybritech's other kits, indisputably embodying the invention claimed in the '110 patent, obtained similar substantial market positions.

Although the district court did not provide its insights into why commercial success was due to business acumen and not to the merits of the claimed invention, Monoclonal urges in support that it was due to Hybritech's spending disproportionate sums on marketing, 25-30% of income. The undisputed evidence was that expenditures of *mature* companies in this field are between 17 and 32%. Furthermore, the record shows that advertising makes those in the industry -- hospitals, doctors, and clinical laboratories -- aware of the diagnostic kits but does not make these potential users buy them; the products have to work, and there is no evidence that that is not the case here or that the success was not due to the merits of the claimed sandwich assays -- clearly contrary to the district court's finding.

The trial court's finding that the "sudden availability of monoclonals" was the reason for the commercial success of Hybritech's diagnostic kits (Finding 11) is unsupported by the record and clearly erroneous. Monoclonal admits that monoclonal antibodies were available in the United States in 1978, and the evidence clearly reflects that. Thus, at least *three years* passed between the time monoclonal antibodies were available in adequate supply and the time Hybritech began selling its kits. Especially in the fast-moving biotechnology field, as the evidence shows, that is anything but sudden availability.

ii. Unexpected Advantages

Hybritech points to the testimony of three witnesses skilled in the diagnostic field who state that, based on tests done in their laboratories as a result of real-world comparisons in the normal course of research, the diagnostic kits that embody the '110 invention unexpectedly solved longstanding problems. Dr. Hussa, the head of a large referral laboratory and a world-wide consultant, testified that until Hybritech introduced its kits, he and others were very skeptical and had almost exclusively used competitive assays with a radioactive tracer (RIAs). ⁵ In relation to an HCG Hybritech

kit, he testified that he had first thought that the Hybritech HCG kit would not give accurate results for low antigen concentrations because that condition is indicated in the Hybritech kit by a low radioactivity reading, a reading difficult to differentiate from control samples containing no antigen. He also stated that in the past, RIA kits falsely detected HCG in nonpregnant women, a condition which would indicate cancer and surgery. He stated that when he employed the Hybritech HCG kit in such instances it demonstrated, correctly and absent any difficulty

interpreting the data, that no HCG was present.

Dr. Blethen, an M.D. holding a Ph.D. in biochemistry, testified that she did not think that the Hybritech HGH kit, for detecting growth hormone in children, would offer any advantage, but she determined that it detected HGH deficiencies in children where conventional RIAs failed to do so. She also stated that the kit does not give false positive readings as do conventional RIA kits, an opinion shared by Dr. Hussa. A third witness, Dr. Herschman, who holds a master's degree in chemistry, testified that he spent years working on the development of an assay that would determine the presence of TSH (thyroid stimulating hormone) with greater sensitivity. He succeeded but discovered that the Hybritech TSH kit had the same sensitivity, the test being performed in four hours rather than the three days his kit required.

Having considered the evidence of nonobviousness required by §103 and *Graham*, supra, we hold, as a matter of law, that the claimed subject matter of the '110 patent would not have been obvious to one of ordinary skill in the art at the time the invention was made and therefore reverse the court's judgment to the contrary. The large number of references, as a whole, relied upon by the district court to show obviousness, about twenty in number, skirt all around but do not as a whole suggest the claimed invention, which they must, to overcome the presumed validity, *Lindemann*, 730 F.2d at 1462, 221 USPQ at 488, *as a whole*. See 35 USC 103; *Jones v. Hardy*, 727 F.2d 1524, 1529, 220 USPQ 1021, 1024 (Fed. Cir. 1984). Focusing on the obviousness of substitutions and differences instead of on the invention as a whole, as the district court did in frequently describing the claimed invention as the mere substitution of monoclonal for polyclonal antibodies in a sandwich assay, was a legally improper way to simplify the difficult determination of obviousness. See generally *Hodosh v. Block Drug Co*, 786 F.2d 1136, 229 USPQ 182 (Fed. Cir. 1986).⁶

With respect to the objective indicia of nonobviousness, while there is evidence that marketing and financing played a role in the success of Hybritech's kits, as they do with any product, it is clear to us on the entire record that the commercial success here was due to the merits of the claimed invention. It cannot be argued on this record that Hybritech's success would have been as great and as prolonged as admittedly it has been if that success were not due to the merits of the invention. The evidence is that these kits compete successfully with numerous others for the trust of persons who have to make fast, accurate, and safe diagnoses. This is not the kind of merchandise that can be sold by advertising hyperbole.

V. Enablement, Best Mode, and Definiteness Under §112

The section 112 defense appears to have been an afterthought of both Monoclonal, who briefly but unsuccessfully attempts to defend this utterly baseless determination, and of the district court which adopted the defense from Monoclonal's pretrial papers apparently without knowledge of the applicable law, to highlight, as it stated at trial, that it was part of its job to see that "whoever wins wins all the way or whoever loses loses all the way." Taken as a whole, the court's comments on §112 -- split into two parts, one from Monoclonal's pretrial brief and the other from the adopted pretrial

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findings and conclusions -- are internally inconsistent. The opinion states that the patent fails to disclose how (1) to make monoclonal antibodies; (2) to screen for proper monoclonal antibodies; and (3) to measure monoclonal antibody affinity and therefore the specification is nonenabling and does not satisfy the best mode requirement, and the claims are indefinite. We discuss each of these in turn.

1. Enablement

Enablement is a legal determination of whether a patent enables one skilled in the art to make and use the claimed invention, *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 960, 220 USPQ 592, 599 (Fed. Cir. 1983), is not precluded even if some experimentation is necessary, although the amount of experimentation needed must not be unduly extensive, *Atlas Powder Co. v. E.I. Du Pont De Nemours & Co.*, 750 F.2d 1569, 1576, 224 USPQ 409, 413

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(Fed. Cir. 1984), and is determined as of the filing date of the patent application, which was August 4, 1980. See *W.L. Gore and Associates v. Garlock, Inc.*, 721 F.2d 1540, 1556, 220 USPQ 303, 315 (Fed. Cir. 1983). Furthermore, a patent need not teach, and preferably omits, what is well known in the art. *Lindemann*, 730 F.2d at 1463, 221 USPQ at 489.

The record fully supports the '110 patent's statement that

The monoclonal antibodies used for the present invention are obtained by the [hybridoma] process discussed by Milstein and Kohler. . . . The details of this process are well known and not repeated here.

The district court itself stated that the "method for producing monoclonal antibodies in vitro was well known prior to the alleged invention of the '110 patent," and used the "sudden availability of monoclonal antibodies" produced by the Kohler and Milstein discovery to support, albeit erroneously, its finding of a lack of nexus between the merits of the claimed invention and its commercial success. The court then about-faced and held the '110 patent deficient because it fails to teach how to make monoclonal antibodies.

With respect to screening, the only permissible view of the evidence is that screening methods used to identify the necessary characteristics, including affinity, of the monoclonal antibodies used in the invention were known in the art and that the '110 patent contemplated one of those. At trial, Monoclonal's counsel stated "it is a procedure that was known in '78." In similar fashion, the district court held that the claimed subject matter would have been obvious in part because the "existence of monoclonal antibodies *having the affinity constants claimed in the patent was well known* prior to the alleged invention" [Emphasis ours.] Furthermore, there was not a shred of evidence that undue experimentation was required by those skilled in the art to practice the invention. We hold as a matter of law that the '110 patent disclosure is enabling.

2. Best Mode

"The specification . . . shall set forth the best mode contemplated by the inventor of carrying out his invention." 35 USC 112. Because not complying with the best mode requirement amounts to concealing the preferred mode contemplated by the applicant at the time of filing, in order to find that the best mode requirement is not satisfied, it must be shown that the applicant knew of and concealed a better mode than he disclosed. *DeGeorge v. Bernier*, 768 F.2d 1318, 1324, 226 USPQ 758, 763 (Fed. Cir. 1985) (quoting with approval *In re Sherwood*, 613 F.2d 809, 204 USPQ 537 (CCPA 1980)). The only evidence even colorably relating to concealment is testimony by various Hybritech employees that sophisticated, competent people perform the screening and that the screening process is labor-intensive and time-consuming. It is not plausible that this evidence amounts to proof of concealment of a best mode for screening or producing monoclonal antibodies for use in the claimed '110 process, and therefore we are of the firm conviction that the district court's finding that the best mode requirement was not satisfied is clearly erroneous.

3. Indefiniteness

[5] The basis of the district court's holding that the claims are indefinite is that "they do not disclose how infringement may be avoided because antibody affinity cannot be estimated with any consistency." (Conclusion 6.) Even if the district court's finding in support of this holding -- that "there is no standard set of experimental conditions which are used to estimate affinities" -- is accurate, under the law pertaining to indefiniteness -- "if the claims, read in light of the specification, reasonably apprise those skilled in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more," *Shatterproof Glass Corp. v. Libbey Owens Ford Co.*, 758 F.2d 613, 624, 225 USPQ 634, 641 (Fed. Cir. 1985) -- the claims clearly are definite. The evidence of record indisputably shows that calculating affinity was known in the art at the time of filing, and

notwithstanding the fact that those calculations are not precise, or "standard," the claims, read in light of the

specification, reasonably apprise those skilled in the art and are as precise as the subject matter permits. As a matter of law, no court can demand more.

VI. Motions

Monoclonal's motion to strike Appendices A and B of Hybritech's reply brief as being beyond the page limit applicable to reply briefs is granted as to Appendix A but denied as to Appendix B, the latter having been helpful in culling the often non-supportive citations to the record by Monoclonal.

Hybritech's motion to supplement the record with a Monoclonal advertisement not considered at trial is denied. Any adverse impact that the disposition of these two motions has upon either party is more than outweighed by this court's patience with the seemingly endless flow of post-argument argumentative papers.

VII. Conclusion

The judgment of the district court holding the patent in suit invalid is *reversed* in all respects, and the case is *remanded* for a determination of the issue of infringement which the court held was moot.

REVERSED AND REMANDED

Footnotes

Footnote 1. With respect to obviousness, one portion of the district court's opinion apparently relies on all of the above listed references, (1)-(5), for the obviousness holding while a later portion entitled "CONCLUSIONS OF LAW" relies on only the Oi/Herzenberg and Frankel articles. Furthermore, the district court did not state that the LJCRF work was considered for purposes of §103, although we recognize that §102(g) prior art can be used for §103.

Footnote 2. A dose response curve is antigen concentration plotted against the signal produced by labelled antibody in an immunoassay. The signal increases with increasing antigen concentration in a successful assay but at some point decreases when the antigen concentration becomes too high.

Footnote 3. Although the district court failed expressly to find the level of ordinary skill in the art at the time the invention was made, it did make reference to "[p]eople working in immunology aware of the Kohler and Milstein discovery" which we deem an accurate finding for the purposes of that portion of the *Graham* factual inquiries.

Footnote 4. Finding 10, which states that the invention was contemporaneously developed and disclosed in at least five publications and patent applications not listed above *and dated well after the filing date of the '110 patent but before its issuance* is irrelevant for purposes of the hypothesis based on the three factual inquiries required by §103 as interpreted by *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966) because obviousness must be determined as of the time the invention was made. Additionally, they are of little probative value in this case because they are dated December 1981 at the earliest, more than a year after the August 4, 1980, filing date here and roughly two years after conception occurred. Furthermore, simultaneous development may or may not be indicative of obviousness, the latter being the case here for the above reasons and because the other evidence of nonobviousness is adequate, such occurrences having been provided for in 35 USC 135. *Lindemann*, supra, 730 F.2d at 1460-61, 221 USPQ at 487; *Environmental Designs, Ltd. v. Union Oil Co. of California*, 713 F.2d 693, 698 n.7, 218 USPQ 865, 869 n.7 (Fed. Cir. 1983)

Footnote 5. Monoclonal's expert Blakemore testified that of 425 assays on the market in 1979 less than 1% were sandwich assays. Today, sandwich assays constitute the majority of all assays sold.

The record also shows that Blakemore, who testified extensively for Monoclonal that the claimed invention would have been obvious, never used monoclonal antibodies in sandwich assays at Cetus before 1980. Additionally, she did not even mention them in the Jeong patent, of which she was a coinventor, which issued January 13, 1981, long after the beginning of Hybritech's work in this area in 1979.

Footnote 6. It bears repeating that it is crucial that counsel set forth the law accurately. More particularly, it is the

duty of counsel to impart to the judge that the obviousness question properly is whether the *claimed invention as a whole would have been* obvious to one of *ordinary* skill in the art *at the time the invention was made*, and that the district court must *expressly* make the three factual determinations required by *Graham* and consider objective evidence of obviousness *before* the legal conclusion of obviousness vel non is made. Submitting to the court language like "any differences . . . would have been obvious," as was done here, violates the axiom that the question is not whether the differences would have been obvious but the claimed invention *as a whole*. Furthermore, arguing that "it would be obvious" rather than that it would *have been* obvious shifts the court's focus to the wrong period of time, namely to a time long after the invention was made, in which, more likely than not, the prior art and the level of ordinary skill in the art are more advanced. *See* 35 USC 103.

- End of Case -

FULL TEXT OF CASES (USPQ2D)
All Other Cases

Richardson v. Suzuki Motor Co. Ltd. (CA FC) 9 USPQ2d 1913

Richardson v. Suzuki Motor Co. Ltd.

**U.S. Court of Appeals Federal Circuit
9 USPQ2d 1913**

Decided February 16, 1989

Nos. 87-1497, -1498, -1502, 88-1083, -1084

Headnotes

PATENTS

1. Patentability/Validity -- In general (§ 115.01)

JUDICIAL PRACTICE AND PROCEDURE

Procedure -- Jury trials (§ 410.42)

Jury may decide questions of anticipation and obviousness, either as separate special verdicts or en route to verdict on validity, which is also proper question for determination by jury, since there is no reason to distinguish submission of legal questions to jury in patent cases from such jury submissions routinely made in other types of cases.

PATENTS

2. Patentability/Validity -- Anticipation -- Prior art (§ 115.0703)

Jury's "advisory" verdict that patentee's rising rate motorcycle suspension was not anticipated, and federal district court's independent holding of validity, are affirmed since reasonable jury could have concluded that claim in issue was not anticipated, in view of totality of evidence including prior art consisting of two prior motorcycle suspension patents and two designs for race car suspensions, and since analysis of district court's decision, based on same prior art, shows no clear error.

3. Patentability/Validity -- Obviousness -- Evidence of (§ 115.0906)**JUDICIAL PRACTICE AND PROCEDURE****Procedure -- Jury trials (§ 410.42)**

Federal district court's conclusion, after jury entered verdict of nonobviousness, that obviousness of plaintiff's invention had not been proven and that claim in issue is not invalid, is affirmed despite court's erroneous belief that obviousness issue could only be presented to jury for "advisory" verdict, since review of record shows that there was substantial evidence on which reasonable jurors could conclude that claim had not been proved obvious, and therefore no reversible error occurred.

PATENTS**4. Infringement -- Doctrine of equivalents -- In general (§ 120.0701)****JUDICIAL PRACTICE AND PROCEDURE****Procedure -- Jury trials (§ 410.42)**

Federal district court's judgment of infringement, entered on jury verdict of infringement, is affirmed despite jury's special verdicts that defendant's motorcycle rear suspension linkages are not "equivalent" to patented system, since jury was given incorrect definition of "equivalents" and special verdict interrogatories were prejudicial in that they focused on differences between patented and accused devices without mention of similarities, and since, given correct instructions, reasonable jury could not have found that accused systems, which contain every element of relevant claims but one, are not equivalent to claimed invention.

REMEDIES

5. Monetary -- Damages -- Patents -- Reasonable royalty (§ 510.0507.03)

Jury's award of 50 cents for each infringing motorcycle sold by defendant as damages for infringement of plaintiff's motorcycle suspension system is vacated, since federal district court improperly instructed jury that infringement was "relatively minor," and since, absent such prejudicial instruction, there was no reasonable basis on which jury could have found that royalty awarded was reasonable.

PATENTS**6. Title -- Construction of license agreement (§ 150.07)****TRADEMARKS AND UNFAIR TRADE PRACTICES****Trade secrets -- In general (§ 400.01)**

Federal district court incorrectly instructed jury that only "valid trade secrets" were subject to restraints in contract between plaintiff and defendant since, in view of defendant's agreement not to use or disclose "technical information, know-how, inventions, use data, and design specifications" that it received from plaintiff, jury instructions limited scope of protected information beyond that set forth in contract.

7. Trade secrets -- Elements of trade secret (§ 400.03)**Trade secrets -- Disclosure and misappropriation (§ 400.07)**

Federal district court erred by instructing jury that information defendant could have developed on its own was not subject to trade secret protection, that "slavish" copying is necessary for trade secret misappropriation, and that jury could decide whether plaintiff could have both valid patent and legal protection for later-developed information on patented invention, since information capable of independent development or discovery from other sources is not excluded from trade secret protection, misappropriator cannot escape liability by showing modification of, or improvement upon, protected information, and legal status of information and improvements made after patent application has been filed is independent of presence or absence of patent application or ensuing patent.

8. Trade secrets -- Elements of trade secret (§ 400.03)**JUDICIAL PRACTICE AND PROCEDURE****Procedure -- Jury trials (§ 410.42)**

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Federal district court abused its discretion in granting defendant's motion for new trial on issue of whether certain information constituted trade secrets, since court may not vacate jury verdict unless verdict is contrary to clear weight of evidence, is based upon false evidence, or would cause miscarriage of justice, and since there was substantial evidence before jury that information in question was not publicly known, that defendant agreed to receive and preserve it in confidence, and that information fully satisfies statutory and jurisprudential requirements for protectible trade secrets.

REMEDIES

9. Monetary -- Damages -- In general (§ 510.0501)

Jury's assessment of \$104,000 in damages for defendant's use of certain information obtained from plaintiff is affirmed, since there was substantial evidence presented at trial that would enable jury to determine sum awarded.

10. Non-monetary and injunctive -- Equitable relief -- In general (§ 505.0701)

Non-monetary and injunctive -- Equitable relief -- Permanent injunctions (§ 505.0709)

Federal district court erred in denying plaintiff's motion for injunction after entering final judgment in plaintiff's favor on issue of patent infringement, since irreparable harm is presumed when clear showing of patent validity and infringement is made and therefore injunction should issue if no sound reason exists for denying it, and patentee should not be denied its right to exclude others from using invention once infringement is established.

PATENTS

11. Patent misuse -- Improper procurement and enforcement (§ 140.03)

TRADEMARKS AND UNFAIR TRADE PRACTICES

Trade secrets -- Disclosure and misappropriation (§ 400.07)

REMEDIES

Monetary -- Damages -- Unfair trade practices (§ 510.0508)

Federal district court improperly vacated jury verdicts and ordered new trial on fraud issues after jury found for

plaintiff on those issues and entered award of punitive damages, since, although court may have believed that defendant did not commit fraud, record shows that there was evidence on which reasonable jury could support verdicts, and since jury's award of punitive damages, which may be assessed if fraud has been expressly found, was not so disproportionate to damages sustained as to be result of passion or prejudice.

PATENTS

12. Patentability/Validity -- Inventorship (§ 115.13)

Title -- Assignments (§ 150.03)

REMEDIES

Non-monetary and injunctive -- Equitable relief -- In general (§ 505.0701)

Federal district court erred in denying motion for assignment of defendant's patent to plaintiff after jury returned special verdict finding that invention asserted in patent was first disclosed to defendant by plaintiff, since separate special verdict in which jury found that plaintiff was not "real" inventor of invention asserted in disputed patent, and on which court based its denial of motion, reflects jury's understanding of co-inventor status of third party and contributions of others in development of alternate embodiment of invention and therefore does not diminish force of verdict naming plaintiff as person who first disclosed invention to defendant, since neither question of whether plaintiff is sole or joint inventor, which is not before court, nor presence in claims of further modification beyond that disclosed by plaintiff to defendant, negates imposition of equitable remedy of assignment of patent, and since, based on jury verdict, plaintiff is entitled to ownership of patent as against defendant.

13. Monetary -- Damages -- Prejudgment interest (§ 510.0511)

Federal district court erred in denying plaintiff's request for prejudgment interest on damage awards for patent infringement and misappropriation of trade secrets, since allowance of such interest is required if, as in instant case, there is no showing of exceptional circumstances or reason why damages for trade secret misappropriation should be treated differently from those for patent infringement.

JUDICIAL PRACTICE AND PROCEDURE

14. Procedure -- Jury trials (§ 410.42)

REMEDIES

Monetary -- Damages -- Patents -- Increased damages (§ 510.0507.07)

Federal district court erred in refusing to submit question of willful patent infringement to jury, since evidence adduced at trial concerning fraud, misappropriation of trade secrets, absence of any opinion by U.S. counsel concerning validity of plaintiff's patent at commencement of defendant's infringing activity, and defendant's bad faith, when viewed in light most favorable to plaintiff, does not permit finding of no willful infringement as only reasonable conclusion.

15. Monetary -- Attorney's fees; costs -- Patents (§ 510.0905)**Monetary -- Attorney's fees; costs -- Unfair trade practices (§ 510.0907)**

Federal district court's award of only one-third of costs to plaintiff who prevailed on major substantive issues in suit exceeded court's authority, since plaintiff is entitled to statutory costs incurred before trial court.

Particular patents -- General and mechanical -- Vehicle suspension systems

3,907,332, Richardson, suspension system for two-wheeled vehicles, valid and infringed.

4,457,393, Tamaki and Suzuki, suspension device for motorcycles, assignment to Donald G. Richardson ordered.

Case History and Disposition:

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Appeal from the U.S. District Court for the Central District of California, Gray, J.

Action by Donald G. Richardson against Suzuki Motor Co. Ltd., U.S. Suzuki Motor Corp., Kawasaki Heavy Industries Ltd., Kawasaki Motors Corp., Yamaha Motor Co. Ltd., Yamaha Motor Corp. U.S.A., Kayaba Industry Co. Ltd. and Kayaba Industry Co., for patent infringement, breach of contract, fraud and misappropriation of trade secrets. From judgment holding plaintiff's patent not invalid and infringed, awarding damages for infringement and use of plaintiff's information by defendant, and from grant of defendant's motion for new trial on issues of trade secrets, fraud, and damages awarded for fraud, Richardson and Suzuki defendants cross-appeal. Affirmed in part, reversed in part, vacated in part, and remanded.

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Driscoll, of Driscoll & Tomich, San Marino, Calif. (John E. Wagner, Glendale, with them on brief), for plaintiff/appellant.

John A. Fogarty, of Kenyon & Kenyon, New York, N.Y. (Richard S. Gresalfi and Dawn M. DiStefano, New York, N.Y., and Richard S. Rockwell, Tustin, Calif., with him on brief; Duffern H. Helsing and Halina F. Osinski, Santa Ana, Calif., of counsel), for defendants/cross-appellants.

Judge:

Before Skelton, senior circuit judge, and Smith and Newman, circuit judges.

Opinion Text

Opinion By:

Newman, J.

This appeal and cross-appeal are from the judgment of the United States District Court for the Central District of California, and involve issues of patent validity, infringement, breach of contract, fraud, misappropriation of trade secrets, and several related

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issues. 1 We affirm in part, reverse in part, vacate in part, and remand.

The Invention

The invention that led to this litigation is a motorcycle rear-wheel suspension system that smooths the ride over rough terrain, of interest particularly in off-road motorcycle riding. The roughness of the ride is due to bumps and dips in the terrain, transmitted from the wheels to the frame. An optimum rear-wheel suspension will maintain tire contact with the ground despite deflection by irregularities, will avoid "bottoming out" (an unsafe rising of the suspension), yet will achieve a smooth ride without reduction in safety. In 1974 even the best available suspensions did not maintain adequate tire contact with the ground in conjunction with attempts to eliminate bottoming out.

In mid-1974 Donald G. Richardson, a young mechanic in California, devised a solution to the problem, a modified suspension system that he installed in his own motocross motorcycle. Richardson replaced the conventional two-spring shock absorber suspension system with a system consisting of a single shock absorber plus a linkage consisting of a bell crank and connecting rod. This linkage generated a "rising rate" 2 -- a characteristic critical to the issue -- and produced a far superior ride, even as it eliminated the dangerous bottoming out. Richardson testified about his first ride, at a hilly construction site near his house, as "utopia. I mean it was incredible"; over hard bumps it was "uncanny because it was so smooth"; "[t]he rear end didn't kick up. It just didn't bottom out and stayed down"; an "unbelievable feeling".

On November 25, 1974 Richardson filed a United States patent application on his invention, and on September 23, 1975 the application issued as United States Patent No. 3,907,332 (hereinafter the '332 or Richardson patent).

Patent claim 9, which incorporates claim 1, is the only claim in suit. Claims 1 and 9 follow:

1. A suspension for two wheeled vehicles comprising:

a frame for the vehicle comprising a generally closed shape including upper and lower portions and a swing arm pivotally connected to the lower portion of said frame;
said swing arm comprising a pair of arms rotatably supporting a wheel about a horizontal axis generally at the end of said swing arm;
the pivotal mounting of said arm to said frame being about a generally horizontal axis whereby said wheel is both rotatable about its own horizontal axis and deflectable in a generally vertical direction about the axis of said swing arm;
spring means having a first end pivotally secured to said frame;
a link member including an intermediate point pivotally mounted on said frame about an axis, parallel to the axis of said swing arm at a point spaced therefrom;
pivotal connection means between said link member and the second end of said spring;
a bar pivotally connected at one end to said swing arm and at the opposite end to said link member at a position spaced from said spring connection;
said spring, bar, swing arm and link connected whereby deflection of said swing arm displaces said bar and rotates said link member to compress said spring.

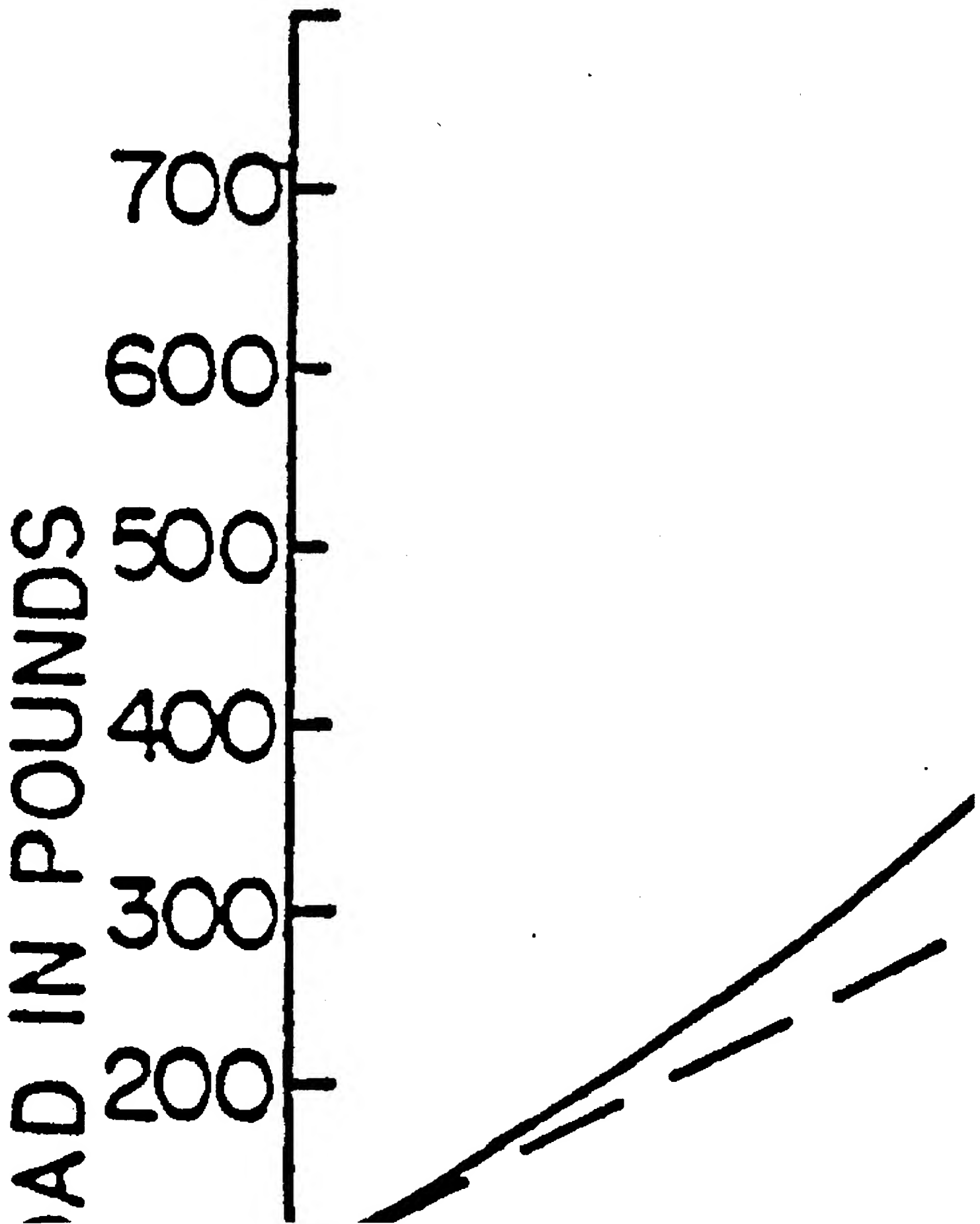
9. The combination in accordance with claim 1 wherein said assembly provides a rising spring rate as a function of deflection of said swing arm.

Figure 2 of the '332 patent specification is illustrative:



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As the rear wheel is deflected upward by bumps in the terrain, the swing arm (32) that is pivotally connected at (34) to the motorcycle frame (21) rotates upward, pushing the compression rod (41) into the bell crank (42) that is pivotally secured (31) at its intermediate point to the motorcycle frame. The bell crank rotates on its pivot (31) and compresses, downward against the frame, a spring (46) that is pivotally connected at one end (45) to the bell crank, and at its other end (52) to the motorcycle frame. The interaction of these interconnected parts increases the force on the spring, increasing the rate of resistance to deflection of the wheel with increased movement of the wheel. This varying resistance is the "rising spring rate" of claim 9, and is illustrated in Figure 5 of the '332 patent:



The Contact with Suzuki

In October 1978 Richardson entered into a one year Option and License Agreement with the Suzuki Motor Co., Ltd. of Japan ("Suzuki").

The Agreement gave Suzuki the exclusive right to test and evaluate Richardson's suspension, and the exclusive option to acquire an exclusive license to the '332 patent and Richardson's "proprietary technical information, know-how, inventions, and use data", collectively defined in the Agreement as the "Licensed Rights."

The Agreement required Richardson to disclose to Suzuki all technical information, know-how, inventions, use data and design specifications for his suspension, that he possessed or that he acquired during the option period. Suzuki agreed to preserve all such information in confidence, and not to use any of it "for any purpose other than to evaluate for commercial feasibility of manufacture and marketing during the Option Period." Suzuki agreed that this obligation of confidence continued if Suzuki did not exercise the option. Excepted from the confidentiality obligation was all information previously known to Suzuki or at any time generally known to the public.

The agreement required Richardson to make prototypes of his suspension system for Suzuki's evaluation. Richardson installed his suspension in Suzuki's sample 1978 and 1979 model production motorcycles, and disclosed to Suzuki the technical information and know-how that he possessed, including improvements and other information that he developed during this period. He met frequently with Suzuki engineers and other Suzuki personnel in the United States and in Japan to communicate this information and generally to improve performance and to facilitate testing and evaluation.

There was testimony at trial of initial incredulity on the part of Suzuki engineers concerning Richardson's suspension, of Suzuki's past failures in designing a suspension with the desired characteristics, and of Suzuki's favorable response to the performance of Richardson's suspension. The evidence included internal Suzuki documents made while Suzuki was testing Richardson's suspension, stating that it would "take a long time", perhaps three years, for Suzuki to develop a satisfactory suspension.

In early 1979 Richardson and a colleague Cazort conceived an improvement in the linkage-generated rising rate suspension, which they called the "Alternate Shock Mount" and which they disclosed to Suzuki, accompanied by drawings and blueprints made by Cazort. The difference from the structure described in the '332 patent is that in the Alternate Shock Mount the lower end of the spring is pivotally secured to the swing arm which is pivotally secured to the frame, instead of being pivotally secured directly to the frame, resulting in increased strength.

In May 1979 Richardson's first prototype for Suzuki, wherein Richardson, aided by Cazort, installed his suspension in a Suzuki 1978 production model, was successfully tested in Japan. Testimony at trial included statements attributed to Suzuki's test riders that they could see the bumps but not feel

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them, and other commentary evidencing a highly favorable reaction to Richardson's suspension.

It was a stipulated fact that after these tests Suzuki made the decision to place the linkage-generated rising rate suspension system into production, and started development work for this purpose.

On October 16, 1979 Suzuki filed a patent application in Japan. The corresponding United States patent, filed on October 8, 1980, claims the Alternate Shock Mount suspension as disclosed by Richardson, and also claims a modification made by Suzuki called the "criss-cross". Suzuki named two of its engineers, Hirohide Tamaki and Manabu Suzuki, as the inventors.

Suzuki twice requested and was granted one-month extensions of its Option and License Agreement with Richardson. In December 1979 Suzuki informed Richardson that it would not exercise the option.

In March 1980 Suzuki began competitive racing in the United States of Suzuki motorcycles using the Alternate Shock Mount suspension, which Suzuki named the "Full Floater". Suzuki met with marked racing success, the Full Floater receiving favorable publicity and high acclaim from the public, Extensive advertising was directed to

the Full Floater rising rate suspension. The product achieved widespread commercial success. Suzuki denied any obligation to Richardson.

Litigation

Richardson brought suit against Suzuki (Japan) and the U.S. Suzuki Motor Corporation in California state court, and was granted a preliminary injunction restraining the Suzuki companies from breach of the Option and License Agreement and requiring them to comply with the confidentiality terms thereof. At Suzuki's request the state court declined to enforce the injunction after U.S. Suzuki sued Richardson in federal court, seeking a declaratory judgment of invalidity and non-infringement of Richardson's '332 patent.

In 1982 Richardson filed a patent infringement action against the Suzuki companies and others. (Only the Suzuki companies remain as parties.) Richardson reasserted the state claims of breach of contract, breach of implied covenant of good faith and fair dealing, misappropriation of trade secrets, and fraud, and among other relief requested assignment of the patents obtained by Suzuki on the Alternate Shock Mount. Suzuki counterclaimed for fraud and breach of contract by Richardson, based on asserted invalidity of the '332 patent.

The federal actions were consolidated and tried to a jury. After forty-seven days of a two-part trial the jury gave special verdicts on issues of liability and damages. The district court entered final judgment under Fed.R.Civ.P. 54(b) on the jury verdicts that the '332 patent was not invalid and was infringed by Suzuki, that nine of Richardson's eleven asserted trade secrets were not trade secrets, and that Richardson was not entitled to assignment of the Tamaki/Suzuki patents on the Alternate Shock Mount. The court also entered final judgment on the jury verdicts of damages for patent infringement and for Suzuki's use of certain of Richardson's information that the jury found were not trade secrets. The court denied prejudgment interest and attorney fees, and refused to grant an injunction.

The district court denied most of the parties' post-trial motions, but granted Suzuki's motion for a new trial on three issues that the jury had decided in favor of Richardson, upholding two of the eleven asserted trade secrets, finding fraud on the part of Suzuki, and assessing damages for fraud. The district court then entered a supplemental final judgment for immediate appeal of the issues that the court intended to retry, and certified three specific questions on these and related issues.

I

Validity of Richardson's '332 Patent

Suzuki asserts on appeal the invalidity of claim 9 on grounds of anticipation (35 U.S.C. §102) and obviousness (35 U.S.C. §103). 3 The district court, stating that questions of patent validity must be decided by the court, told the jury that its verdicts on this issue were advisory. Nevertheless the court duly entered the jury verdicts, including the answer YES to the question: "Under the facts and the law as you believe that you understand them, do you find Claim 9 of the Richardson Patent to be valid?" The court entertained, and denied, post-trial motions for judgment n.o.v. and for a new trial on the question of validity. The court also independently decided the question, upholding validity of the '332 patent.

The record provided to us doesn't show the origin of this discredited procedure of advisory

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jury verdicts, or whether either party objected. In *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 895 n.5, 221 USPQ 669, 674 n.5 (Fed. Cir.), *cert. denied*, 469 U.S. 857 [225 USPQ 792] (1984), we observed that: The view suggested in *Sarkisian v. Winn-Proof Corp.*, 688 F.2d 647, 651, (9th Cir. 1982), *cert. denied*, 460 U.S. 1052 (1983)], that a jury verdict on nonobviousness is at best advisory, would make charades of motions for directed verdict or JNOV under Fed.R.Civ.P. 50 in patent cases. These motions apply only to *binding* jury

verdicts. . . .

Moreover, use of an advisory jury is limited to actions not triable of right by a jury.

(emphasis in original, citations omitted). In a similar circumstance wherein the trial court and the jury independently decided the same jury question (in that case the question of willfulness of infringement) we remarked that "[a]ll fact findings of a jury are non-advisory, unless made in an area expressly removed from jury verdict." *Shiley, Inc. v. Bentley Laboratories, Inc.* , 794 F.2d 1561, 1568, 230 USPQ 112, 115 (Fed. Cir. 1986), *cert. denied* , 479 U.S. 1087 (1987).

[1] It is established that the jury may decide the questions of anticipation and obviousness, either as separate special verdicts or en route to a verdict on the question of validity, which may also be decided by the jury. *Connell v. Sears, Roebuck & Co.* , 722 F.2d 1542, 1547, 220 USPQ 193, 197 (Fed. Cir. 1983):

No warrant appears for distinguishing the submission of legal questions to a jury in patent cases from such submissions routinely made in other types of cases. So long as the Seventh Amendment stands, the right to a jury trial should not be rationed, nor should particular issues in particular types of cases be treated differently from similar issues in other types of cases.

See also, e.g., Vieau v. Japax, Inc. , 823 F.2d 1510, 1515, 3 USPQ2d 1094, 1098 (Fed. Cir. 1987); *Verdegaal Brothers Inc. v. Union Oil Co. of California* , 814 F.2d 628, 631, 2 USPQ2d 1051, 1052 (Fed. Cir.), *cert. denied* , 108 S.Ct. 95 (1987); *Data Line Corp. v. Micro Technologies, Inc.* , 813 F.2d 1196, 1200, 1 USPQ2d 2052, 2054 (Fed. Cir. 1987); *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.* , 806 F.2d 1565, 1571, 1 USPQ2d 1081, 1085 (Fed. Cir. 1986); *DMI, Inc. v. Deere & Co.* , 802 F.2d 421, 425-27, 231 USPQ 276, 279-80 (Fed. Cir. 1986); *Mainland Industries, Inc. v. Standal's Patents Ltd.* , 799 F.2d 746, 747-48, 230 USPQ 772, 773 (Fed. Cir. 1986); *Trans-World Mfg. Corp. v. Al Nyman & Sons, Inc.* , 750 F.2d 1552, 1560, 224 USPQ 259, 263 (Fed. Cir. 1984); *Quaker City Gear Works, Inc. v. Skil Corp.* , 747 F.2d 1446, 1454-55, 223 USPQ 1161, 1165-66 (Fed. Cir. 1984), *cert. denied* , 471 U.S. 1136 (1985); *Weinar v. Rollform Inc.* , 744 F.2d 797, 805, 223 USPQ 369, 372 (Fed. Cir. 1984), *cert. denied* , 470 U.S. 1084 (1985); *Perkin-Elmer Corp.* , 732 F.2d at 894-95, 221 USPQ at 674; *Envirotech Corp. v. Al George, Inc.* , 730 F.2d 753, 758, 221 USPQ 473, 477 (Fed. Cir. 1984); *Railroad Dynamics, Inc. v. A. Stucki Company* , 727 F.2d 1506, 1512-13, 220 USPQ 929, 935 (Fed. Cir.), *cert. denied* , 469 U.S. 871 [224 USPQ 520] (1984); *White v. Jeffrey Mining Mach. Co.* , 723 F.2d 1553, 1558, 220 USPQ 703, 705 (Fed. Cir. 1983) ("Submission of such a question of law [obviousness] to a jury, accompanied by appropriate instructions, is proper."), *cert. denied* , 469 U.S. 825 (1984). *See generally* , H.T. Markey in *On Simplifying Patent Trials* , 116 F.R.D. 369, 370 (1987) ("There is neither reason nor authority for employing in a patent trial procedures and practices different from those employed in any other civil trial. Indeed, reason and authority mandate the contrary.")

Although the district court and the jury reached the same result, the standards by which appellate courts review the judgment differ, depending on whether it arose from a jury or a bench trial. *District of Columbia v. Pace* , 320 U.S. 698, 701 (1944) ("findings of fact by an equity court and the verdict of a jury have from time immemorial been subject to different rules of finality"). When the judgment arises from a jury verdict, the reviewing court applies the reasonable jury/substantial evidence standard: a standard that gives greater deference to the judgment simply because appellate review is more limited, compared with review of a trial judge's decision. *Id.* at 702. As summarized in *Lavender v. Kurn* , 327 U.S. 645, 653 (1946), "the appellate court's function is exhausted when that evidentiary basis [of the jury's verdict] becomes apparent, it being immaterial that the court might draw a contrary inference or feel that another conclusion is more reasonable." *See generally* M.B. Louis, *Allocating Adjudicative Decision Making Authority Between the Trial and Appellate Levels: A Unified View of the Scope of Review, The Judge/Jury Question, and Procedural Discretion* , 64 N.C. L.Rev. 993 (1986).

The parties do not take a position on the district court's procedure, but appear to recognize that the issue of validity was properly for jury determination, for neither party refers to the district court's explanation of its

independent determination of the question of obviousness.

In the interest of reaching an end to this protracted litigation, we have reviewed the judgment on the terms on which it reaches us. We have determined first whether Suzuki met its burden of showing on appeal that no reasonable jury could have reached the verdict of "valid" on the evidence before it. *Allen Organ Co. v. Kimball Int'l, Inc.* , 839 F.2d 1556, 1566, 5 USPQ2d 1769, 1777 (Fed. Cir.), *cert. denied* , 109 S.Ct. 132 (1988); *DMI, Inc. v. Deere & Co.* , 802 F.2d 421, 425, 231 USPQ 276, 278 (Fed. Cir. 1986); *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.* , 758 F.2d 613, 618-19, 225 USPQ 634, 636 (Fed. Cir.), *cert. dismissed* , 474 U.S. 976 (1985). Then, on the premise that the parties may have waived their right to a jury trial on this question by failure to object to the district court's procedure, we have considered whether the district court's independent judgment of validity may be sustained, on the standards applicable thereto. *Panduit Corp. v. Dennison Mfg. Co.* , 810 F.2d 1561, 1566-68, 1 USPQ2d 1593, 1595-97 (Fed. Cir.) (obviousness determination in bench trial reviewed as a question of law based on underlying facts), *cert. denied* , 107 S.Ct. 2187 (1987).

The court correctly instructed the jury that invalidity must be proved by clear and convincing evidence, referring to the presumption of validity. *Perkin-Elmer Corp.* , 732 F.2d at 894, 221 USPQ at 674; *Jamesbury Corp. v. Litton Industrial Products, Inc.* , 756 F.2d 1556, 1559, 225 USPQ 253, 255 (Fed. Cir. 1985); *American Hoist & Derrick Co. v. Sowa & Sons, Inc.* , 725 F.2d 1350, 1360, 220 USPQ 763, 771 (Fed. Cir.), *cert. denied* , 469 U.S. 821 [224 USPQ 520] (1984).

A. Anticipation

The district court correctly instructed the jury that an invention is anticipated if the same device, including all the claim limitations, is shown in a single prior art reference. Every element of the claimed invention must be literally present, arranged as in the claim. *Perkin-Elmer Corp.* , 732 F.2d at 894, 221 USPQ at 673; *Kalman v. Kimberly-Clark Corp.* , 713 F.2d 760, 771-72, 218 USPQ 781, 789 (Fed. Cir. 1983), *cert. denied* , 465 U.S. 1026 [224 USPQ 520] (1984). The identical invention must be shown in as complete detail as is contained in the patent claim. *Jamesbury Corp.* , 756 F.2d at 1560, 225 USPQ at 256; *Connell* , 722 F.2d at 1548, 220 USPQ at 198. As prior art, Suzuki relied on the motorcycle suspensions described in certain patents to Downs and Warner, and on the race car wheel suspensions described for Tyrrell and McLaren race cars in two Road and Track magazine articles. Witnesses explained to the jury the similarities and differences between the invention of the '322 patent and each prior art reference. For example, the Downs suspension has a spring element that is rigidly attached to the motorcycle frame and does not pivot as is required by claim 9 of the '322 patent. The Warner reference shows a suspension having a bell crank that is pivotally mounted to the motorcycle frame but not at an intermediate point, whereas Richardson requires a mid-point pivot of the bell crank to the frame. Neither Downs nor Warner describes a rising rate. The magazine articles describe a four wheel racing car suspension system having a linkage-generated variable rising rate incorporating a bell crank, but instead of the swing arm of Richardson's motorcycle suspension, the race car systems use an A-shaped arm mounted to the side of an upright wheel; and the bell crank and linkage in the race car system is located beside the wheel, rather than in front of the wheel as in Richardson's motorcycle system.

Witnesses testified that rising rate in motorcycles had previously been obtained only by progressively wound springs and gas operated shock absorbers. Suzuki argued that rising rate is inherent in the Downs and Warner motorcycle suspensions and expressly described for race cars in the magazine articles, and also that rising rate is merely a statement of function, and thus should not be a basis for distinction from the prior art.

The jury found that Downs did not "disclose each and every element of the Richardson Claims 1 and 9 or their equivalent". For the Warner reference, the jury could not reach a unanimous verdict on this same question, but answered NO to the question whether "the respective elements of Warner function in substantially the same way as the corresponding elements in Richardson to produce substantially the same results". The jury found that the race car suspensions did "disclose each and every element of the Richardson Claims 1 and 9 or their equivalent", but

did not reach a unanimous verdict as to whether they "function in substantially the same way as the corresponding elements in Richardson to produce substantially the same results."

The jury had erroneously been instructed that anticipation may be shown by equivalents, a legal theory that is pertinent to obviousness under Section 103, not to antici

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pation under Section 102. *Lewmar Marine, Inc. v. Barient, Inc.*, 872 F.2d 744, 747-48, 3 USPQ2d 1766, 1768 (Fed. Cir. 1987), *cert. denied*, 108 S.Ct. 702 (1988); *Connell*, 722 F.2d at 1548, 220 USPQ at 198. The jury requested a definition of "equivalent" during its deliberations, and was given the Webster's dictionary definition "corresponding or virtually identical, especially in effect or function." This narrow definition, which does not accord with that of *Graver Tank & Mfg. Co. v. Linde Air Products Co.*, 339 U.S. 605, 608 [85 USPQ 328, 330] (1950), may have minimized the legal error in the instructions. In any event, the erroneous inclusion of equivalents in the anticipation inquiry favored Suzuki. The jury nonetheless answered YES to the special verdict: "Under the facts and law as you believe that you understand them, do you find Claim 9 of the Richardson Patent to be valid?" [2] On the totality of the evidence and in light of the jury instructions and answers, we conclude that a reasonable jury could have found that the patent was not invalid on grounds of anticipation. *Perkin-Elmer Corp.*, 732 F.2d at 894, 221 USPQ at 673-74 (review of presumed jury finding that anticipation not proved, based on jury verdict of validity).

Reviewing the analysis and decision of the district court, based on the same prior art, we discern no clear error in the court's conclusion that claim 9 was not invalid.

We affirm that claim 9 was not proved invalid on the ground of anticipation.

B. Obviousness

The issue of obviousness was vigorously litigated, Suzuki relying on the same Downs and Warner patents and magazine articles. The record shows that there was extensive testimony concerning the differences between Richardson's suspension and the prior art. Suzuki argued at trial, and repeats on this appeal, that these differences are trivial mechanical expedients.

The jury, among its special verdicts on the *Graham* factors, found that a person of ordinary skill in the pertinent art could be any of: (1) a motorcycle mechanic without formal technical education, (2) a person with experience in working on suspension systems for racing automobiles, but without formal technical training, (3) suspension system instructors, (4) professional motorcycle riders, and (5) someone possessing above-average mechanical skills. Suzuki argues that such a person is of generally high mechanical skill, and to such a person Richardson's rising rate motorcycle suspension would have been an obvious "adaption" of the race car suspension systems, which "suggests itself quite plainly, since Downs and Warner incorporate bell cranks in their respective suspensions."

The jury was unable to reach a unanimous verdict on the question of whether a person of the level of skill found by the jury, presented with the problem and being familiar with all the prior art including these four specific references, but unaware of Richardson's device, would be "led to do" what Richardson did. In response to the ultimate question, as we have observed, the jury reached the unanimous verdict that "Under the facts and law as you believe that you understand them", claim 9 was "valid". The district court entered judgment on the jury verdicts, independently held the patent valid, and denied Suzuki's motions for judgment n.o.v. and for a new trial on the issue of validity.

The question for the jury was whether the challenger met the burden of proving invalidity by clear and convincing evidence; and the question on review is whether reasonable jurors could have concluded that the challenger failed to meet that burden. *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1571, 1 USPQ2d 1081, 1085 (Fed. Cir. 1986); *Perkin-Elmer Corp.*, 732 F.2d at 894-95, 221 USPQ at 674. The jury's lack of unanimity on

certain special verdicts can reasonably be taken to mean, as the district court held, that invalidity had not been proved by clear and convincing evidence.

[3] Our review shows that there was substantial evidence on which reasonable jurors could have concluded that claim 9 had not been proved invalid for obviousness, and thus reached the verdict of "valid". Although the district court erred in its belief that obviousness could only be presented to the jury for an advisory verdict, we may view the court's agreement with the jury verdict of validity as supporting the court's denial of Suzuki's post-trial motions for judgment n.o.v. and for a new trial. *Perkin-Elmer Corp.*, 732 F.2d at 895, 221 USPQ at 674-75. However it is viewed procedurally, no reversible error has been shown in the court's conclusion that obviousness had not been proved and that claim 9 was not invalid.

The judgment of validity is affirmed.

II

Infringement

Richardson bore the burden of proving infringement by a preponderance of the evi

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dence. The district court correctly stated that the jury was the finder of the fact of infringement.

The jury rendered special verdicts as to the Suzuki motorcycles before it, Model M having the Richardson/Cazort Alternate Shock Mount and Model C having the "criss-cross" connection added by Suzuki, as follows:

9(a). Do defendant Suzuki's motorcycles of the Model M type . . . infringe Claim 9 of the plaintiff's patent?

Answer: YES, WITH THE RISING RATE

9(b). Do defendant Suzuki's motorcycles of the Model C type . . . infringe Claim 9 of the plaintiff's patent?

Answer: YES, WITH THE RISING RATE

In subparts 9(a)(2) and 9(b)(2) of the special verdict the jury answered YES to the question whether the Suzuki motorcycles produce substantially the same rising rate as taught in Richardson's patent.

The principal question on appeal is the meaning and effect of the jury answers to subparts (1) of the special verdict, which were directed "in particular" to the Alternate Shock Mount and the criss-cross modifications:

9(a)(1). In particular, is the defendant's linkage equivalent to the plaintiff's, bearing in mind that the bottom of the spring in the former is affixed to the swing arm rather than to the frame?

Answer: NO

9(b)(1). In particular, is the defendant's linkage equivalent to the plaintiff's, in light of the "criss-cross" of the connecting rods and the bell crank in the defendant's model, as well as the spring attachment to the swing arm, as compared with the plaintiff's Claim 9?

Answer: NO

The district court entered judgment of infringement in favor of Richardson and denied post-trial motions by both sides, including a motion by Richardson to reopen the record in order to present evidence on the doctrine of equivalents. The district court stated that the jury verdicts mean that "infringement is limited to 'rising rate' " and that the Suzuki and Richardson linkages are not equivalent.

Suzuki argues that special verdicts 9(a)(1) and 9(b)(1) require judgment of non-infringement; or, as a minimum, that these verdicts are inconsistent with the verdicts of infringement in 9(a) and 9(b), such that a new trial is required of the entire issue. Richardson states that the verdicts can be understood, when viewed in light of the jury instructions, in a way that supports the judgments of infringement. Suzuki did not request a new trial on the basis of inconsistent verdicts at the time the judgments were entered, while Richardson moved, unsuccessfully, to amend or delete verdicts 9(a)(1) and 9(b)(1). Each party asserts that any inconsistency should be resolved in its favor. The Ninth Circuit, in accordance with the general rule, requires trial and appellate courts to seek reconciliation of

apparently inconsistent verdicts:

When faced with a claim that verdicts are inconsistent, the court must search for a reasonable way to read the verdicts as expressing a coherent view of the case, and must exhaust this effort before it is free to disregard the jury's verdict and remand the case for a new trial.

Toner v. Lederle Laboratories, 828 F.2d 510, 512 (9th Cir. 1987), *cert. denied*, 108 S.Ct. 1122 (1988) (citing *Gallick v. Baltimore & Ohio R.R.*, 372 U.S. 108, 119 (1963), also citing *Atlantic & Gulf Stevedores, Inc. v. Ellerman Lines, Ltd.*, 369 U.S. 355, 364 (1962) and *Blanton v. Mobil Oil Corp.*, 721 F.2d 1207, 1213, (9th Cir. 1983), *cert. denied*, 471 U.S. 1007 (1985)). See also *Allen Organ Co.*, 839 F.2d at 1563, 5 USPQ2d at 1775 (the appellate court must make every effort to harmonize the jury's answers).

The district court did not find the special verdicts inconsistent, apparently in the belief that the jury limited infringement to the rising rate provision of claim 9 but not the other claim clauses. This accords with the court's statement to the jury that the infringement was "minor" because it was limited to the rising rate. This interpretation pleased neither party. If we have correctly understood it, it is incorrect as a matter of law.

"We are bound to find the special verdicts consistent if we can do so under a fair reading of them." *Toner*, 828 F.2d at 512. A fair reading of the special verdicts results from simply applying the rule that "[t]he consistency of the jury verdicts must be considered in light of the judge's instructions to the jury". *Toner*, 828 F.2d at 512. The instructions on infringement, and the specific questions asked by special verdict, were designed to resolve the issues raised at trial. There was testimony on both sides of Suzuki's assertion that its suspension was not the same as Richardson's because it produced a different rising rate. We referred *supra* to special verdicts 9(a)(2) and 9(b)(2):

9(a)(2). Does defendant's Model M produce rising rate substantially the same as

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the rising rate produced under the teachings of the plaintiff's patent?

Answer: YES

9(b)(2). Does defendant's Model C produce rising rate substantially the same as the rising rate produced under the teachings of the plaintiff's patent?

Answer: YES

Another special verdict in the infringement section asked the jury:

11. Does claim 9 of the Richardson Patent describe the invention of a rising rate in terms of what the invention will do rather than in terms of physical arrangement?

Answer: NO

We conclude that the answer "yes, with the rising rate" in verdicts 9(a) and 9(b) is the jury's response to Suzuki's argument, rather than as a finding that only the rising rate claim limitation, and no other, is embodied in the Suzuki suspensions.

We discern no support in the record for the district court's conclusion that verdicts 9(a) and 9(b) meant that the rising rate was the only area of infringement. Structure corresponding to every element of every clause of claims 1 and 9 was identified by witnesses as embodied in the accused motorcycles. There was no real dispute that of the nine or eleven elements in these claims (depending on how counted), all but one were literally present. The dispute centered on one element, the attachment of the spring in the claim clause "spring means having a first end pivotally secured to said frame", since this was the clause affected by the modifications of the Alternate Shock Mount and the criss-cross. In the Alternate Shock Mount, as we have discussed, the spring is pivotally secured to a swing arm that in turn is pivotally secured to the frame, instead of being pivotally secured directly to the frame as is shown in the '332 specification.

Richardson argues that the spring can be either directly or indirectly pivotally secured to the frame, without avoiding literal infringement of the claim. Richardson alternatively argues that on a correct definition of the

doctrine of equivalents, citing *Graver Tank*, 339 U.S. at 608 [85 USPQ at 330], these securements are equivalent because the structures are substantially the same and perform substantially the same function in the same way. The jury had been given the dictionary definition that "equivalent" means "corresponding or virtually identical, especially in effect or function". This definition was reinforced by the phrasing of verdicts 9(a)(1) and 9(b)(1), wherein the question itself instructed the jury on the difference between the linkages, while remaining silent on the similarities.

This presentation was highly prejudicial. Indeed, these verdicts well illustrate the truism that the way a question is asked can direct the answer. "The decision to submit interrogatories, and the precise language in which they are couched, can have an untoward effect on a verdict, if certain elements of the trial or the evidence are thereby overly emphasized in the jury's mind." *Weinar v. Rollform Inc.*, 744 F.2d 797, 809, 223 USPQ 369, 376 (Fed. Cir. 1984), *cert. denied*, 470 U.S. 1084 (1985).

Further, and equally prejudicial, special verdicts 9(a)(1) and 9(b)(1) isolated this specific claim element so that it was removed from the perspective that is obtained only when the claimed invention is viewed in its entirety. *See, e.g.*, *Hughes Aircraft Co. v. United States*, 717 F.2d 1351, 1363, 219 USPQ 473, 482 (Fed. Cir. 1983). We recently reemphasized in *United States Steel Corp. v. Phillips Petroleum Co.*, No. 88-1166, -1167, -1168, -1169, -1170, -1171, slip op. at 13-14 [9 USPQ2d 1461] (Fed. Cir. Jan. 10, 1989), in discussing *Graver Tank*, that there is no error in considering "the principle of the claimed invention".

A device that embodies improvements on a claimed structure does not automatically avoid the reach of the claim. *See, e.g.*, *Atlas Powder Co. v. E.I. du Pont de Nemours & Co.*, 750 F.2d 1569, 1580, 224 USPQ 409, 417 (Fed. Cir. 1984) (separately patentable improvement may also be an equivalent under the doctrine of equivalents); *A.B. Dick Co. v. Burroughs Corp.*, 713 F.2d 700, 703 218 USPQ 965 (Fed. Cir. 1983) (infringement not avoided "merely by adding elements"), *cert. denied*, 464 U.S. 1042 (1984). Each case must be decided on its particular facts, viewing the changes in the accused structure in light of the claimed invention. *See generally Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934-35, 4 USPQ2d 1737, 1739 (Fed. Cir. 1987), *cert. denied*, 108 S.Ct. 1226 (1988), and *cert. denied*, 108 S.Ct. 1474 (1988); *Texas Instruments, Inc. v. United States Int'l Trade Comm'n*, 805 F.2d 1558, 1569-70, 231 USPQ 833, 840 (Fed. Cir. 1986), *reh'g denied*, 846 F.2d 1369, 6 USPQ2d 1886 (Fed. Cir. 1988).

[4] We conclude that the jury verdicts, viewed in light of the instructions, held that the Suzuki motorcycles with a rising rate infringed claim 9. We also conclude that on correct instructions no reasonable jury could have found that the claimed invention and the accused structures are not equivalent, on the established facts of record, applying the

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correct law of *Graver Tank*. *See Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 252 (1986) ("The mere existence of a scintilla of evidence in support of the plaintiff's position will be insufficient; there must be evidence on which the jury could reasonably find for the plaintiff."); *Pullman-Standard v. Swint*, 456 U.S. 273, 291-92 (1982) ("where findings [by the district court] are infirm because of an erroneous view of the law, a remand is the proper course unless the record permits only one resolution of the factual issue"); *Dana Corp. v. IPC Limited Partnership*, 860 F.2d 415, 419, 8 USPQ2d 1692, 1696 (Fed. Cir. 1988) (when there are sufficient established facts of record, appellate court has discretion to determine the merits of JNOV motion.)

The jury verdicts of infringement are supported by substantial evidence, and are upheld. The judgment of infringement is affirmed.

III

Damages for Patent Infringement

As damages for patent infringement the jury assessed a royalty of fifty cents per motorcycle. Richardson states that this royalty is unreasonably low, and resulted from erroneous and prejudicial jury instructions. We review the award on the reasonable jury/substantial evidence standard. *Shatterproof Glass Corp.*, 758 F.2d at 627-28, 225 USPQ at 643-44.

The court told the jury: "Now, I will sustain, I will uphold your verdict [of infringement], but in determining damages and determining any royalty, it seems to me that you must consider that the infringement was a relatively minor infringement." This instruction derived, as we have discussed, from the erroneous interpretation of the verdicts as limited to the "rising rate" clause. We must determine whether this erroneous instruction was prejudicial to the jury's assessment of damages. The Ninth Circuit has stated that "we will reverse a judgment because of a mistake in jury instructions only if the error was prejudicial." *Smiddy v. Varney*, 665 F.2d 261, 265 (9th Cir. 1981), *cert. denied*, 459 U.S. 829 (1982).

35 U.S.C. §284 provides that damages shall be "adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer". *Fromson v. Western Litho Plate and Supply Co.*, 853 F.2d 1568, 1574, 7 USPQ2d 1606, 1612 (Fed. Cir. 1988). The jury was told that a royalty of \$2.00 per motorcycle with an annual minimum of \$70,000 had been agreed to by Suzuki and Richardson in the Option and License Agreement. There was testimony of much higher royalties paid by others for similar contributions to motorcycles. Suzuki presented testimony that the \$2.00 in the agreement does not apply, but should be the starting point for reducing the royalty because the infringement was minor.

[5] We must assume that the jury followed the court's instruction that the infringement was minor. That instruction was a misinterpretation of the jury verdict of infringement, and it usurped the role of the jury. Absent this prejudicial instruction there was no reasonable basis on which reasonable jury could have found that fifty cents was a reasonable royalty.

The judgment of damages for patent infringement is vacated. We remand for retrial of the question.

IV

Richardson's Technical Information

Issues relating to Richardson's technical information were presented at trial on the legal theories of breach of contract and the tort of misappropriation of trade secrets. The district court concentrated on the tort issues in presentation to the jury, apparently accepting Suzuki's position that it had complied with its contractual obligations to Richardson. The court thus required that Richardson prove the existence of legally protectible trade secrets and their misappropriation by Suzuki.

In the only special verdict on the contract issues, the jury found that Suzuki did not violate its duty of good faith and fair dealing in its relationship with Richardson. The jury instructions on the contractual relationship, however, are pertinent to, and intertwined with, the trade secret issues.

A. The Contractual Relationship

In matters of contract law and interpretation we apply the discernable law of the state of California. *Universal Gym Equipment, Inc. v. ERWA Exercise Equipment Ltd.*, 827 F.2d 1542, 1550, 4 USPQ2d 1035, 1040 (Fed. Cir. 1987). At trial Richardson pressed, unsuccessfully, the California law that a covenant of good faith and fair dealing is implied between parties to a contract. *Seaman's Direct Buying Service, Inc. v. Standard Oil Co.*, 38 Cal.3d 752, 768, 686 P.2d 1158, 1166, 206 Cal.Rptr. 354, 363 (1984) ("It is well settled that, in California, the law implies in every contract a covenant

of good faith and fair dealing." (Emphasis in original)).

The contract between Richardson and Suzuki was explained at trial, including the clause wherein Suzuki agreed not to use or disclose the "technical information, know-how, inventions, use data, and design specifications" that it received from Richardson. In discussing whether Suzuki was restrained in its post-contract use of Richardson's information, the district court at first instructed the jury that Suzuki was entitled by law "to use the most efficient means, even though they got it from plaintiff", stating that only "valid trade secrets" were subject to the contractual restraints:

And then after Suzuki's election not to take a license, of course, they were not supposed to use the plaintiff's trade secrets. That's what the contract says. And once again, you're going to have to determine whether these eleven were valid trade secrets. To what extent did the defendant use them, to what extent would the defendant otherwise have developed them.

Now, some of these trade secrets refer to the best alignments and designs. Well, it seems incongruous to say to the defendant they cannot use the best because the best was intentionally disclosed by the plaintiff, and even though experimentation by the defendant surely would have revealed the best as the patent says that it would.

Were the defendants precluded from using the best or were they obliged to use something less efficient. I can't conceive of the defendants not being entitled to use the most efficient means, even though they got it from the plaintiff.

The court later qualified this position by referring to reverse engineering as being improper -- although it is far from clear what a reasonable jury would have understood from the court's instructions:

But on further reflection, I have to acknowledge that if you find there was a confidential relationship or contract that prohibited Suzuki from using the plaintiff's trade secrets, technical information or know-how, inventions or use data that the plaintiff gave them, unless it exercised the option, if you find those things to be true, I suppose it would be improper for Suzuki to reverse engineer from Richardson's prototypes, or from trade secrets or other information that he gave them.

The defense of reverse engineering does not apply to information received in confidence or whereas here the information is given under a contract.

Reviewing these instructions in the context of the contract and trade secret questions that were before the jury, we conclude that the jury was incorrectly instructed on the law. *See Bulgo v. Munoz*, 853 F.2d 710, 714 (9th Cir. 1988) (quoting *Los Angeles Memorial Coliseum Comm'n v. National Football League*, 726 F.2d 1381, 1398 (9th Cir.), *cert. denied*, 469 U.S. 990 (1984)) (instructions reviewed to determine "whether, viewing the jury instructions as a whole, the trial judge gave adequate instructions on each element of the case to ensure that the jury fully understood the issues.")

[6] In *Universal Gym Equipment*, 827 F.2d at 1549, 4 USPQ2d at 1040, we affirmed liability under California law based on breach of contract, when the parties contracted to limit the use by the recipient of "features, designs, technical information, or know-how" disclosed under the contract. We also affirmed that such a contractual arrangement is not incompatible with the patent law, *id.* at 1550, 4 USPQ at 1041, an issue on which the district court in Richardson's case also appears to have been misled, and to have misled the jury. *See Components for Research, Inc. v. Isolation Products, Inc.*, 241 Cal.App.2d 726, 730, 50 Cal.Rptr. 829, 832 (Cal. Dist.Ct.App. 1966) ("The judgment here but affords protection against the use of plaintiff's trade secrets by those to whom they had been disclosed in confidence. Whether the idea was patented or not, plaintiff is entitled to such protection"). The district court erred in law, in limiting the scope of protected information beyond that set forth in the contract, and in its instructions to the jury as to Suzuki's obligations. These errors are reflected in the trade secret issues.

B. The trade secret issues

The jury, despite the excessively restrictive instructions on what were trade secrets, found that certain items that Suzuki had received from Richardson were trade secrets and had been misappropriated, and assessed damages therefor. The jury also assessed damages for use by Suzuki of certain other items that did not "rise to the dignity of trade secrets", in the words of the special verdicts.

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Richardson specified eleven items that he had disclosed to Suzuki under the contract, and that he asserted to be trade secrets; to wit: (1) the optimal characteristics of a motorcycle rear-wheel suspension shock absorber, showing three external adjustments, (2) engineering drawings of his proposed and furnished suspension systems, (3) 1978 and

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1979 Suzuki motorcycles modified by Richardson with his rising rate suspension, (4) specific force-velocity curves needed to obtain the advantages of Richardson's invention in Suzuki's motorcycles, (5) design modifications to extend rear wheel travel over earlier rising-rate designs, (6) design of the Alternate Shock Mount including drawings and knowhow, (7) the optimum use and types of certain bearings in the suspension, (8) motorcycle testing and tuning criteria, (9) his bell crank designs and design criteria, (10) adjustments in the angles and dimensions of the parts of the suspension and their effect on performance, and (11) the straight line tubular motorcycle frame.

The California law of trade secrets follows the Restatement definition:

A trade secret may consist of any formula, pattern, device or compilation of information which is used in one's business, and which gives him an opportunity to obtain an advantage over competitors who do not know or use it. . . . Generally it relates to the production of goods, as, for example, a machine or formula for the production of an article.

By-Buk Co., 163 Cal.App.2d at 166, 329 P.2d at 152, 118 USPQ at 553, citing Restatement (First) of Torts, §757 comment b (1939). The court in *By-Buk Co.* reaffirmed "plaintiff's right not to have its [trade secret] processes wrongfully disclosed to others and used to its detriment." *Id.* at 167, 329 P.2d at 153, 118 USPQ at 553.

The burden of proof was placed on Richardson to prove that his information met the legal requirements of a protectible trade secret. *Forro Precision, Inc. v. International Business Machines Corp.*, 673 F.2d 1045, 1056-57, 215 USPQ 299, 305-6 (9th Cir. 1982). This in turn required "either a covenant or a confidential relationship" as a premise of relief. *Futurecraft Corp. v. Clary Corp.*, 205 Cal.App.2d 279, 283, 23 Cal.Rptr. 198, 207-208 (Cal. Dist.Ct.App. 1962) (discussing elements of trade secret protection). Richardson met this requirement through his contractual covenant.

The district court told the jury, several times, that because Suzuki might have developed or could have developed on its own the information it received from Richardson, such information can not be protected as a trade secret.

The court said: "Now I think we must assume that the defendant could have accomplished whatever the plaintiff may have contributed toward the development of Models M and C." Whatever the validity of the proposed assumption as to Suzuki's abilities, the court's conclusion is contrary to California law:

It is not necessary in order that a process of manufacture be a trade secret that it be patentable or be something that could not be discovered by others by their own labor and ingenuity.

By-Buk Co., 163 Cal.App.2d at 166, 329 P.2d at 152, 118 USPQ at 553. Nor does the possibility of independent discovery relieve Suzuki of liability:

"[S]ecret formulas and processes * * * are property rights which will be protected by injunction, not only as against those who attempt to disclose or use them in violation of confidential relations or contracts express or implied, but as against those who are participating in such attempt with knowledge of such confidential relations or contract, though they might in time have reached the same result by their own independent experiments or efforts."

Id. at 167, 329 P.2d at 153, 118 USPQ at 553-54 (quoting *Herold v. Herold China & Pottery Co.*, 257 F. 911, 913 (6th Cir. 1919)). Indeed, Suzuki did not argue that it had actually developed on its own the information that it first received from Richardson. Although Richardson adduced evidence that Suzuki had been unable to solve this problem, it is not relevant what Suzuki might have been able to do on its own. Ninth Circuit law upholds trade secret status even had the same information been obtainable from other sources. *Clark v. Bunker*, 453 F.2d 1006, 1010, 172 USPQ 420, 423 (9th Cir. 1972) (trade secrecy "is not negated because defendant by an expenditure of

effort might have collected the same information from sources available to the public.") (footnote omitted). The court also erroneously instructed the jury that "slavish" copying is necessary for misappropriation, and that an exercise of independent judgment would remove the information from protection. The court instructed the jury to consider: "Were they secrets. And, second, did the defendants slavishly use them or did they make up their own minds." These views are contrary to California law. "[D]efendants cannot escape responsibility by showing that they have improved upon or modified the plaintiff's process." *By-Buk Co.*, 163 Cal.App.2d at 169, 329 P.2d at 154, 118 USPQ at 554. The court observed in *Sinclair v. Aquarius Electronics, Inc.*, 42 Cal.App.3d 216, 222, 116 Cal.Rptr. 654, 659, 184 USPQ 682, 684 (Cal. Ct.App. 1974) that minor variations are to be expected. Suzuki argued to the jury, and repeats on appeal, that information that Richardson developed after issuance of the '332 patent, including the Alternate Shock Mount, is

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barred from trade secret status because it was generally disclosed in Richardson's patent or known to the general public, or because it merely implements the patented invention.

The legal status of information and improvements made after a patent application has been filed is independent of the presence, or absence, of the patent application or ensuing patent. The information and improvements may be separately patentable; they may be preserved in confidence and disclosed only in accordance with agreement; and they are protected against misappropriation in accordance with the laws of contract and tort. The court misstated the law in telling the jury that the jury could decide whether Richardson could have both a valid patent and legal protection for later-developed information on the patented invention:

So on the one hand [Richardson] says the ordinary person skilled in the art can take this patent and use it and make a machine based upon it. But, on the other hand, he says, however, the experimentation and the ability to do this constitutes trade secrets for which you must pay me. Now, that constitutes a dilemma and it's up to you to determine the extent to which Mr. Richardson may claim as trade secrets things that the ordinarily prudent person skilled in the art should be able to do on his own.

The district court's phrase "should be able to do on his own" may explain its misperception of the law. It is not known what Suzuki was able to do on its own, for Suzuki not only sought Richardson's knowhow, improvements, data, and information, but also agreed to respect the confidentiality thereof. This information is intellectual property in the eyes of the law, and is protected in accordance with law. See generally *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 493 [181 USPQ 673, 682] (1974), See also *Components for Research, Inc.*, 241 Cal. App.2d at 730, 50 Cal.Rptr. at 832 (whether the product design was patented or not, plaintiff is entitled to trade secret protection for manufacturing process); *Sinclair*, 42 Cal. App.3d at 225, 116 Cal.Rptr. at 660, 184 USPQ at 686 ("Trade secret law encourages invention in areas where patent law does not reach"). *Accord Thermotics, Inc. v. Bat-Jac Tool Co., Inc.*, 541 S.W.2d 255, 261, 193 USPQ 249, 253 (Tex. Civ.App. 1976) (post-patent improvement protectable under trade secret law); *Franke v. Wiltshchek*, 209 F.2d 493, 495, 99 USPQ 431, 433 (2d Cir. 1953) (immaterial that defendants could have derived trade secrets from expired patent).

[7] It is apparent that the court imposed a higher standard for trade secret status than is contained in California law. The court's instructions, commentary, and phrasing of the special verdicts not only placed a prejudicially heavy burden on Richardson, but also demeaned the information itself.

Despite this prejudicial environment, the jury found that items 5 and 6 were trade secrets and had been misappropriated by Suzuki, and assessed damages therefore. The jury also found that items 1-4 and 7-11 were not trade secrets, and that for some but not all of these items compensation should be awarded based on "benefit from the plaintiff's knowledge and from the time and effort expended by him".

The district court granted Suzuki's motion for a new trial with respect to items 5 and 6, and upheld the jury verdicts with respect to items 1-4 and 7-11.

C. The new trial of items 5 and 6

The grant of a new trial is ordinarily not reviewable, but on this issue the district court entered final judgment for purposes of appeal, and certified three questions. The first certified question is:

1. Where the plaintiff's asserted trade secrets Nos. 5 and 6: (a) Actually valid proprietary trade secrets, as the jury found and awarded very substantial royalties; or (b) Did the plaintiff's contributions in these respects represent no more than the services of a skilled mechanic, which readily could have been duplicated by the defendant, and which entitled the plaintiff only to quantum meruit compensation, as the court believes; or (c) Were the plaintiff's contributions no more than those contemplated under the option agreement and paid for by the defendant, as the defendant contends?

We respond to this question: From the record before us the jury verdict that items 5 and 6 met the requirements for trade secret protection was supported by the great weight of the evidence. Richardson and Cazort testified about the design modifications that were the subject of item No. 5 and the Alternate Shock Mount subject of item No. 6. The Alternate Shock Mount was considered sufficiently novel and valuable that Suzuki included it in a patent application filed in Japan and later in the United States. The record does not negate the jury's determination of the value of this information. According to California law it is immaterial what Suzuki could have done, for it chose to use Richardson's information, which it obtained under restraint.

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In further response, we remark that the relation between the parties, set by contract, was a routine commercial arrangement wherein Richardson agreed to facilitate Suzuki's testing and evaluation of Richardson's invention. This did not convert Richardson's work in adapting his invention to Suzuki's motorcycle into the work of a hired technician whose work product was automatically owned by Suzuki. The proprietary nature of the work done and information provided by Richardson was established by agreement, as was the agreement that Suzuki would not use this information if it did not exercise its option.

[8] There was substantial evidence before the jury that the information on items 5 and 6 was not publicly known, that Suzuki agreed to receive and preserve it in confidence, and that the information fully satisfies the statutory and jurisprudential requirements for protectible trade secrets.

In order to vacate the jury's verdict upholding items 5 and 6 as trade secrets and grant a new trial thereon, the trial court must find that the jury's verdict "is contrary to the clear weight of the evidence, or is based upon evidence which is false, or to prevent, in the sound discretion of the trial judge, a miscarriage of justice." *Hanson v. Shell Oil Co.*, 541 F.2d 1352, 1359 (9th Cir. 1976), *cert. denied*, 429 U.S. 1074 (1977) (quoting *Moist Cold Refrigerator Co. v. Lou Johnson Co.*, 249 F.2d 246, 256, 115 USPQ 160, 168-69 (9th Cir. 1957), *cert. denied*, 356 U.S. 968 [117 USPQ 498] (1958)); *William Inglis & Sons Baking Co. v. IIT Continental Baking Co., Inc.*, 668 F.2d 1014, 1027 (9th Cir. 1981), *cert. denied*, 459 U.S. 825 (1982). It is insufficient that the district court would simply have reached a different verdict.

Our review requires determination of whether the district court abused its discretion in its decision to grant the new trial. *Id.* See *Transgo, Inc. v. Ajac Transmission Parts Corp.*, 768 F.2d 1001, 1014, 227 USPQ 598, 602 (9th Cir. 1985), *cert. denied*, 474 U.S. 1059 (1986) ("the grant or denial of either a motion for a new trial or a motion to amend the judgment must be reviewed on the basis of a determination of whether the district court abused its discretion.") See generally *Seattle Box Co. v. Industrial Crating & Packing, Inc.*, 756 F.2d 1574, 1581, 225 USPQ 357, 363 (Fed. Cir. 1985) ("Abuse of discretion may be established by showing that the district court either made an error of law, or a clear error of judgment, or made findings which were clearly erroneous.") The district court's statements, for example with respect to item 5, "I simply cannot conclude that that is a trade secret. It was an attempt to help Suzuki adapt the Richardson concept to the Suzuki machine . . .", reflect an error of law.

Despite the legal error in the instructions, as we have discussed, any prejudice resulting therefrom favored Suzuki, not Richardson. We conclude that the district court exceeded its discretionary authority in vacating the jury verdict

and ordering a new trial. That action is reversed, and the jury verdict is reinstated as to items Nos. 5 and 6, including the damages assessed for items Nos. 5 and 6.

D. Items 1-4 and 7-11

For asserted trade secrets Nos. 1-4 and 7-11, the jury may well have been led by erroneous instructions into applying an incorrect legal standard, in finding that these items were not trade secrets. It appears, however, that Richardson did not move for judgment n.o.v. or a new trial on these verdicts. Although there is a hint in the post-trial colloquy that the court intended or was willing to retry all the trade secret issues along with items 5 and 6, this does not satisfy the rule, supported by logic, that the formalities of post-trial motions be respected. *Snellman v. Ricoh Co.*, 836 F.2d 528, 534, 5 USPQ2d 1341, 1346 (Fed. Cir. 1987) (applying Ninth Circuit law in holding that motions for judgment n.o.v. and for a new trial must be made). Thus we have no authority to review these verdicts.

By special verdict the jury was also asked to assess damages for Suzuki's use of the information encompassed in each of items 1-4 and 7-11, even if the information did not "rise to the dignity of trade secrets". The jury determined this sum for each item, some at \$0, the highest at \$25,000, for a total of \$104,000. The district court sustained this award, on a theory of "quantum meruit compensation". Both parties appeal this award, Richardson asserting its inadequacy, and Suzuki arguing that Richardson was fully paid for his information in the option agreement, and is not entitled to damages for Suzuki's use of any information received from Richardson.

We have rejected, as a matter of law, Suzuki's theory that it is entitled to use, free, the information disclosed by Richardson under the option agreement. Richardson's disclosures were made under terms that prohibited their use by Suzuki if the option was not exercised. This contract provision does not depend on whether the information is a trade secret, but only on whether it was previously known to Suzuki or generally known to the public, as discussed *ante*.

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An appellate tribunal is abjured to determine whether a jury verdict can be sustained, on any reasonable theory. *Jaffke v. Kunham*, 352 U.S. 280, 281 (1957) ("A successful party in the District Court may sustain its judgment on any ground that finds support in the record.")

[9] There was substantial evidence at trial whereby a reasonable jury could have determined the sums awarded by this jury. Indeed, Suzuki does not challenge the valuations of the damage awards for items 1-11, arguing instead that nothing at all is owing.

The judgment as to items 1-4 and 7-11 is affirmed, including damages assessed for these items in the total amount of \$104,000.

V

Injunction

The district court, having entered final judgment that the Suzuki Full Floater suspension infringed claim 9 of the '332 patent, denied Richardson's motion for injunction.

[10] Infringement having been established, it is contrary to the laws of property, of which the patent law partakes, to deny the patentee's right to exclude others from use of his property. 35 U.S.C. §261. "[T]he right to exclude recognized in a patent is but the essence of the concept of property". *Connell*, 722 F.2d at 1548, 220 USPQ at 198 (citing *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)).

It is the general rule that an injunction will issue when infringement has been adjudged, absent a sound reason for denying it. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 842 F.2d 1275, 1281, 6 USPQ2d 1277, 1283 (Fed. Cir. 1988). Suzuki has presented no such reason. This court stated in *H.H. Robertson Co. v. United Steel Deck, Inc.*,

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820 F.2d 384, 390, 2 USPQ2d 1926, 1929-30 (Fed. Cir. 1987), when reviewing an injunction granted *pendente lite* :

In matters involving patent rights, irreparable harm has been presumed when a clear showing has been made of patent validity and infringement. *Smith International* , 718 F.2d at 1581, 219 USPQ at 692. This presumption derives in part from the finite term of the patent grant, for patent expiration is not suspended during litigation, and the passage of time can work irreparable harm.

We observe that the '332 patent will expire in less than four years, that litigation started over eight years ago, and that the district court remarked that further proceedings could consume "several years".

Further, a misappropriator of trade secrets has no authorization of right to continue to reap the benefits of its wrongful acts. Richardson is entitled to an injunction against Suzuki's continuing use of trade secrets Nos. 5 and 6. *By-Buk Co.* , 163 Cal. App.2d at 167, 329 P.2d at 153, 118 USPQ at 553-54; *Components for Research, Inc.* , 241 Cal.App.2d at 730, 50 Cal.Rptr. at 832.

The denial of Richardson's request for injunction is reversed. On remand the district court shall enter appropriate injunctive relief.

VI

Fraud

The jury found by special verdicts that Suzuki fraudulently induced Richardson to reveal his trade secrets by concealing its intention not to exercise its option or take a license, and that Suzuki fraudulently concealed from Richardson the fact that it was developing the Full Floater "with the intention of declining to exercise the option and then nevertheless to utilize the plaintiff's trade secrets in the full floater". The jury also found fraud in that Suzuki filed the Tamaki patent application "in the knowledge that the invention asserted therein (the spring/swing arm connection) was first disclosed to them by Richardson". The jury awarded Richardson \$20,000 in compensatory and \$100,000 in punitive damages.

The district court vacated the judgment and ordered a new trial. Suzuki asserts that the court should have granted Suzuki's motion for judgment n.o.v. instead of ordering a new trial, while Richardson asserts that the court should have upheld the jury verdicts.

The district court certified the question of how to treat its belief that Suzuki did not commit the offenses of fraud and concealment found by the jury, including the question of punitive damages. We first must consider whether a reasonable jury could have reached the verdicts here reached. *Lavender v. Kurn* , 327 U.S. at 653. Apt is the statement of the Ninth Circuit in *Crocker-Citizens Nat'l Bank v. Control Metals Corp.* , 566 F.2d 631, 635 (9th Cir. 1977): "Courts are not free to reweigh the evidence and set aside the jury verdict merely because the jury could have drawn different inferences or conclusions or because judges feel that other results are more reasonable", quoting *Cockrum v. Whitney* , 479 F.2d 84, 86 (9th Cir. 1973), in turn quoting *Tennant v. Peoria & P. U. Ry. Co.* , 321 U.S. 29, 35 (1944).

[11] The record shows that there was testimony, based on certain of Suzuki's documents, on which a reasonable jury could have

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supported these verdicts. There were issues of credibility, and inferences that could reasonably have been drawn in a manner adverse to Suzuki. "The credibility of witnesses and the weight of the evidence are issues for the jury and are generally not subject to appellate review." *Benigni* , 853 F.2d at 1525. While the district court may have believed that Suzuki did not commit fraud, review shows that the requirements for vacating the jury verdicts and relitigating the issue were not met. *Hanson* , 541 F.2d at 1359; *William Inglis* , 668 F.2d at 1027. A fresh trial is not warranted simply because the district court would have reached a different verdict.

A jury assessment of punitive damages is not excluded in circumstances such as those here presented, where the jury expressly found fraud. *Tri-Tron Int'l v. Velto* , 525 F.2d 432, 437, 188 USPQ 177, 181 (9th Cir. 1975) ("where compensatory damages are sought and awarded, the court has power, on a proper record, to award punitive damages"), citing *Clark v. Bunker* 453 F.2d 1006, 1012, 172 USPQ 420, 424 (9th Cir. 1972), in turn citing *El Rancho, Inc. v. First Nat'l Bank* , 406 F.2d 1205, 1218 (9th Cir. 1968), *cert. denied* , 396 U.S. 875 (1969) (jury verdict awarding punitive damages was supported by evidence of malice) and *Davenport v. Mutual Benefit Health & Accident Ass'n* , 325 F.2d 785, 787 (9th Cir. 1963) (remand for trial to allow evidence of fraud to support claim of punitive damages.)

The district court correctly instructed the jury as to the law, stating that "it's only if you find that the defendants' conduct stem from malice, oppression, fraud or bad faith that you can find any punitive damage at all." As stated in *In re Innovative Construction Systems, Inc.* , 793 F.2d 875, 889, 230 USPQ 94, 104 (7th Cir. 1986): breach of faith underlies every trade secret claim. However, establishing that breach alone is insufficient to warrant an award of punitive damages; one must also demonstrate that the defendant acted wantonly, willfully, or in reckless disregard of the plaintiff's rights. (Citations omitted)

See also Neal v. Farmers Insurance Exchange , 21 Cal.3d 910, 928, 582 P.2d 980, 986, 148 Cal.Rptr. 389, 395 (1978) ("In order to justify an award of exemplary damages, the defendant must be guilty of oppression, fraud or malice. (Civ. Code §3294.) He must act with the intent to vex, injure or annoy, or with a conscious disregard of the plaintiff's rights") (quoting *Silberg v. California Life Insurance Co.* , 11 Cal.3d 452, 462, 521 P.2d 1103, 1110, 113 Cal.Rptr. 711, 718 (1974)); *Reynolds Metals Co. v. Lampert* , 316 F.2d 272, 275 (9th Cir. 1963), *cert. denied* , 376 U.S. 910 (1964) (in jury trial, evidence to justify punitive damages must show injury was done maliciously or willfully and wantonly or committed with bad motive or recklessly); *Transgo, Inc.* , 768 F.2d at 1024 [227 USPQ at 610] (The determination to award punitive damages was "within the exclusive province of the jury") (quoting *Runge v. Lee* , 441 F.2d 579, 584, 169 USPQ 388, 392 (9th Cir.), *cert. denied* , 404 U.S. 887 [171 USPQ 322] (1971)).

The jury having found by special verdicts that Suzuki acted fraudulently, the requisite intent was established. "We give the trial judge and jury wide discretion in assessing punitive damages." *Hatrock v. Edward D. Jones & Co.* , 750 F.2d 767, 772 (9th Cir. 1984). The jury's award was not "so disproportionate to the damages sustained as to be the result of passion or prejudice". *Id.* (citing *Neal* , 21 Cal. 3d at 928, 582 P.2d at 990, 148 Cal.Rptr. at 399). *Transgo, Inc.* , 768 F.2d at 1024 [227 USPQ at 610] ("We will not overturn such an award unless it appears that the jury was influenced by passion or prejudice.") (citing *Harmsen v. Smith* , 693 F.2d 932, 947 (9th Cir. 1982), *cert. denied* , 464 U.S. 822 (1983)).

We answer the certified question that, in this case, neither a new trial nor judgment n.o.v. was warranted. The order of a new trial on this issue is vacated. The judgment on the jury verdicts of fraud and the award of compensatory and punitive damages is reinstated.

VII

The Tamaki Patent

Richardson states that Suzuki fraudulently patented the Alternate Shock Mount that had been disclosed to Suzuki by Richardson and Cazort in a patent that also described the "criss-cross" modification developed at Suzuki. There was evidence and argument on the factual premises, including the absence of supporting documentation on the part of the named inventors Hirohide Tamaki and Manabu Suzuki, the earliest record on their behalf being dated October 1979. The corresponding Japanese patent application was filed on October 16, 1979.

The jury rendered the following special verdicts:

C-3. Did Suzuki and/or Mr. Tamaki file the Tamaki patent application in the knowledge that the invention asserted therein (the spring/swing arm connection) was first disclosed to them by Richardson:

Answer: YES

H-1. Do you find that the Plaintiff, Richardson, is the real inventor of the invention shown in the Tamaki patents and patent applications?

Answer: NO

It was not significantly disputed at trial that claims 1 through 8 of the Tamaki corresponding United States Patent No. 4,457,393 cover the Alternate Shock Mount of Richardson and Cazort, and that claim 9 includes the criss-cross embodiment of Tamaki and Suzuki. (The scope of claim 5 is raised, but is not material to our conclusion.) The district court denied Richardson's post-trial motion that the Tamaki patent be assigned to Richardson. In colloquy with counsel the court explained that it could not do so because "the jury said Richardson wasn't the inventor". Indeed it was conceded, and discussed at trial, that Richardson and Cazort, not Richardson alone, invented the Alternate Shock Mount. Cazort, as well as Richardson, testified at length on this structure. Special verdict H-1 that Richardson is not "the real inventor" is in accord with the co-inventor status of Cazort, and also with the Japanese contribution of the criss-cross embodiment.

[12] The force of special verdict C-3 is not diminished. This verdict was not challenged on appeal. "It was further the duty of the court to direct the appropriate judgment to be entered upon the special verdict." *Traders and General Insurance Co. v. Mallitz*, 315 F.2d 171, 175 (5th Cir. 1963). The district court having failed to implement this verdict, Richardson's motion for judgment and for assignment of the Tamaki patents was not out of order.

The remedy of assignment of the Tamaki patents is a different question from whether Richardson is a sole or joint inventor. The correction of inventorship is an administrative step, and is not before the court. Similarly, the presence of a further modification in one or two claims of the patent directed to the Alternate Shock Mount does not negate the imposition of an equitable remedy. To hold otherwise would ratify and indeed reward the wrongdoing.

Based on the jury verdict, Richardson is entitled to ownership of the patents as against Suzuki. Such remedy is appropriate under the circumstances; see, e.g., *Colgate-Palmolive Co. v. Carter Products, Inc.*, 230 F.2d 855, 865, 108 USPQ 383, 391 (4th Cir.), cert. denied, 352 U.S. 843 [111 USPQ 467] (1956) (corporate assignee of patent application ordered to assign to original holder of trade secrets all rights to patent applications based thereon); *De Long Corp. v. Lucas*, 176 F.Supp. 104, 134 [122 USPQ 471, 493] (S.D.N.Y. 1959), aff'd, 278 F.2d 804 [125 USPQ 370] (2nd Cir.), cert. denied, 364 U.S. 833 [127 USPQ 555] (1960) (when an employee has acquired patents on inventions developed by his former employer, "the courts will hold the wrongdoer to be a constructive trustee of the property misappropriated and will order a conveyance by the wrongdoer to the former employer"); *Becher v. Contoure Laboratories, Inc.*, 279 U.S. 388 (1929) (same); *Saco-Lowell Shops v. Reynolds*, 141 F.2d 587, 598, 61 USPQ 3, 13 (4th Cir. 1944) (requiring assignment of patent based on ideas received by licensee from licensor in confidence during development of invention for market).

Suzuki argues that Richardson has no remedy other than by seeking an interference in the United States Patent and Trademark Office with his own invention, and presumably by taking similar actions, if such are available, in other countries. We do not agree. The courts are not powerless to redress wrongful appropriation of intellectual property by those subject to the courts' jurisdiction.

The denial of Richardson's motion for judgment is reversed. Suzuki shall assign to Richardson the patents filed by Suzuki that include the Richardson/Cazort invention of the Alternate Shock Mount, in all countries. We remand to the district court for the purpose of implementing compliance.

VIII

Prejudgment Interest

[13] The district court denied Richardson's request for prejudgment interest on both the patent infringement and the trade secret damage awards. Prejudgment interest is the rule governing this class of award. *General Motors Corp. v. Devex Corp.*, 461 U.S. 648, 655, 217 USPQ 1185, 1188 (1983); *Lummus Industries, Inc. v. D.M. & E. Corp.*, 862 F.2d 267, 274, 8 USPQ2d 1983, 1988 (Fed. Cir. 1988); *Fromson*, 853 F.2d at 1573-74, 7 USPQ2d at 1611; *Bio-Rad Laboratories, Inc. v. Nicolet Instrument Corp.*, 807 F.2d 964, 967, 1 USPQ2d 1191, 1193 (Fed. Cir. 1986), *cert. denied*, 107 S.Ct. 3187 (1987).

No exceptional circumstances having been shown, and no reason why damages for misappropriated trade secrets should be treated differently from damages for patent infringement, the denial of prejudgment interest is reversed.

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IX

Willful Infringement and Exceptional Case

The district court refused to submit the question of willful infringement to the jury, stating that Richardson had not provided sufficient evidence to go to the jury.

To refuse to give an issue to the jury is to direct a verdict in favor of the opposing party. Thus we review the district court's ruling on the standard of "whether the evidence permits only one reasonable conclusion after viewing the evidence in the light most favorable to the non-moving party and drawing all inferences in favor of that party." *Bulgo v. Munoz*, 853 F.2d 710, 714 (9th Cir. 1988) (citing *Peterson v. Kennedy*, 771 F.2d 1244, 1256 (9th Cir. 1985), *cert. denied*, 475 U.S. 1122 (1986)). See also *Connell*, 722 F.2d at 1546, 220 USPQ at 197.

[14] Richardson refers to the evidence adduced in connection with the jury verdicts of fraud, to the verdicts of misappropriation of trade secrets 5 and 6, to the absence of any opinion of United States counsel concerning validity of the '332 patent when Suzuki started its infringing activity, and to evidence from Suzuki's records tending to show bad faith. Viewing this evidence in the light most favorable to Richardson, and drawing all reasonable inferences in his favor, there was sufficient evidence to take to the jury, for the evidence does not require a verdict in favor of Suzuki. Absent sufficient basis for directing the verdict, Richardson has the right of jury determination of this factual question. Willfulness of behavior is a classical jury question of intent. *Shiley*, 794 F.2d at 1568, 230 USPQ at 115; *Hammerquist v. Clarke's Sheet Metal, Inc.*, 658 F.2d 1319, 1325-26, 212 USPQ 481, 486 (9th Cir. 1981), *cert. denied*, 460 U.S. 1052 (1983). When trial is had to a jury, the issue should be decided by the jury.

We remand for this purpose. The jury's findings on the issue of willfulness will be pertinent not only to the question of multiplication of damages under 35 U.S.C. §284, but also to determination of whether this is an exceptional case in terms of 35 U.S.C. §285. Entitlement under California Civil Code §3426 may also be considered.

X

Other Arguments

Both sides have raised many points in their briefs, disputing most aspects of the proceedings. We have considered all arguments in reaching our conclusions.

Costs

[15] The award by the trial court of only one third costs to Richardson, in view of the judgments in his favor on the major substantive issues, exceeded the trial court's discretionary authority. Richardson is entitled to his statutory

costs incurred before the district court. The reduction thereof is reversed.

Costs on this appeal are taxed in favor of Richardson.

AFFIRMED IN PART, REVERSED IN PART, VACATED IN PART, AND REMANDED.

Footnotes

Footnote 1. *Richardson v. Suzuki Motors Co. and Suzuki U.S. Motors Corp.*, Nos. CV 80-2589-WPG and CV 82-3826-WPG (C.D. Cal. June 29, 1987 and July 13, 1987).

Footnote 2. "Rising rate" was described by witnesses as follows: "as the suspension travels upward, the resistance to upward travel will increase"; and it "gets stiffer as the wheel moves up toward the vehicle or moves upward in the frame."

Footnote 3. The additional aspects of adequacy of disclosure (35 U.S.C. §112) and unenforceability for inequitable conduct, both decided in favor of Richardson, have not been appealed.

- End of Case -

In re HOEKSEMA

(CCPA)

158 USPQ 596

Decided Aug. 8, 1968

No. 7778

U.S. Court of Customs and Patent Appeals

Headnotes

PATENTS

1. Rehearing and reopening—In general (§ 57.1)

Court of Customs and Patent Appeals grants rehearing because of continuing importance of questions involved and strong suggestion of error in its earlier opinion.—In re Hoeksema (CCPA) 158 USPQ 596.

2. Patentability—Composition of matter (§ 51.30)

Process obviousness is relevant in deciding compound obviousness.—In re Hoeksema (CCPA) 158 USPQ 596.

3. Patentability—Invention—In general (§ 51.501)

In context of 35 U.S.C. 103, court is not permitted to fragment a claimed invention in applying that section; invention must be considered as a whole.—In re Hoeksema (CCPA) 158 USPQ 596.

4. Patentability — Composition of matter (§ 51.30)

Claimed compound is the invention as a whole (35 U.S.C. 103), but, so considered, unless there is some known or obvious way to make compound, invention is nothing more than a mental concept expressed in chemical terms and formulae on a paper; invention as a whole is claimed compound and a way to produce it; since there is no showing that claimed compound can exist because there is no showing of a known or obvious way to manufacture it, the invention as a whole is not obvious under section 103.—In re Hoeksema (CCPA) 158 USPQ 596.

5. Patentability — Anticipation — In general (§ 51.201)

Patentability — Invention—In general (§ 51.501)

Conditions for patentability, novelty and loss of right to patent, stated in 35 U.S.C. 102, may have relevance as to disclosure which must be found in prior art to find obviousness of invention under section 103; in determining that quantum of prior art disclosure which is necessary to declare applicant's invention "not novel" or "anticipated" within section 102, test is whether reference contains an enabling disclosure; this test applies to issues under section 103.—In re Hoeksema (CCPA) 158 USPQ 596.

6. Patentability—Composition of matter (§ 51.30)

If prior art fails to disclose or render obvious a method for making claimed compound, at time invention was made, it may not be legally concluded that compound itself is in possession of public; absence of known or obvious process for making claimed compounds overcomes presumption that compounds are obvious, based on close relationships between their structures and those of prior art compounds.—In re Hoeksema (CCPA) 158 USPQ 596.

7. Pleading and practice in Patent Office—Rejections (§ 54.7)

Patent Office having cited reference which rendered claimed compounds prima facie obvious, applicant sustained burden of going forward with contrary evidence by filing affidavit pointing out that reference does not disclose process for producing claimed compounds, thus overcoming Office's position as to reference's legal effect under 35 U.S.C. 103; thereupon, burden of going forward with proofs to support its position as to obviousness shifted to Office; Office's failure to produce such evidence requires that rejection be reversed.—In re Hoeksema (CCPA) 158 USPQ 596.

Particular patents — 9-D-Psicofuranosylpurine

Hoeksema, 9-D-Psicofuranosylpurine and 6-Substituted Derivatives, claim 1 of application allowed.—In re Hoeksema (CCPA) 158 USPQ 596.

Case History and Disposition:

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Appeal from Board of Appeals of the Patent Office.

Application for patent of Herman Hoeksema, Serial No. 30,770, filed May 23, 1960; Patent Office Group 120. From decision rejecting claim 1, applicant appeals. Affirmed at 154 USPQ 169 . On petition for rehearing. Reversed; Kirkpatrick, Judge, dissenting with opinion.

Attorneys:

EARL C. SPAETH (EUGENE O. RETTER and GEORGE T. JOHANNESSEN of counsel) all of Kalamazoo, Mich., for appellant.

JOSEPH SCHIMMEL (JACK E. ARMORE of counsel) for Commissioner of Patents.**Judge:**

Before WORLEY, Chief Judge, RICH, SMITH, and ALMOND, Associate Judges, and KIRKPATRICK, Judge. *

Opinion Text**Opinion By:**

SMITH, Judge.

[1] In our prior consideration of this appeal, we affirmed the decision of the Patent Office Board of Appeals, which had affirmed the examiner's rejection of the sole remaining claim of appellant's application, ¹ In re Hoeksema, 54 CCPA 1618, 379 F.2d 1007, 154 USPQ 169 (1967). Because of the continuing importance of the questions involved, and the strong suggestion of error in our earlier opinion, we granted appellant's petition for a rehearing under the provisions of Rule 7 of this court, 55 CCPA—, (October 5, 1967).

The parties filed new briefs, and the case was reargued on January 3, 1968. Upon reconsideration of our previous decision, we have concluded that our previous decision was erroneous and that a proper resolution of the issues requires that we *reverse* the decision of the board.

The facts are set forth in our original opinion. We shall assume familiarity with that statement of facts and shall here redevelop only those which we now believe were previously misapprehended or misapplied and require the present decision.

The sole claim on appeal is directed to a chemical compound and reads as follows:

1. An N-psicofuranoside having the formula:

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Graphic material consisting of a chemical formula or diagram set at this point is not available. See text in hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

wherein A is selected from the class consisting of hydrogen, the group -XR wherein R is selected from the class consisting of hydrogen, lower-alkyl, and lower-aralkyl, and X is selected from the class consisting of oxygen and sulfur, and the group

Graphic material consisting of a chemical formula or diagram set at this point is not available. See text in hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

wherein R₂ is selected from the class consisting of hydrogen, lower-alkyl, lower-aralkyl, and lower-aryl, and R₃ is selected from the class consisting of lower-alkyl, lower-aralkyl, and lower-aryl, and R₄ is selected from the class consisting of hydrogen, a hydrocarbon carboxylic acid acyl radical containing from two to twelve carbon atoms, inclusive, and a halo-, hydroxy-, lower-alkoxy-, amino-, cyano-, thiocyno-, and nitro-substituted hydrocarbon carboxylic acid acyl radical containing from two to twelve carbon atoms, inclusive.

That claim stands rejected under 35 U.S.C. 103 as unpatentable over prior art, on this record limited solely to the De Boer et al. patent ² (De Boer) which discloses a compound with the structural formula:

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As we noted in our original opinion, the controversy here is limited to the substituent A at the 6-position of the purine ring system. Although a compound having De Boer's structure is not included in the appealed claim since A in the claim cannot be an unsubstituted or primary amino,

Graphic material consisting of a chemical formula or diagram set at this point is not available. See text in hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

, the basic structure of the De Boer compound is similar to the structure of appellant's alkylamino and dialkylamino compounds.³

Despite this close structural similarity between the De Boer amino compound and the alkylamino and dialkylamino compounds included in the appealed claim, appellant chose not to submit a showing of unexpected properties in his claimed compounds.⁴ Appellant asserted that his compounds were unobvious and patentable without such a showing. He urged that De Boer does not teach one of ordinary skill in the art how to make appellant's claimed compounds, and the examiner did not cite any other reference telling how they might be made. Therefore, in appellant's view, his claimed compounds are not in possession of the public, *In re Brown*, 51 CCPA 1254, 329 F.2d 1066, 141 USPQ 245 (1964).⁵

In support of his position, appellant submitted an affidavit by Dr. Paul F. Wiley relating to the unavailability to the public of processes for preparing appellant's alkylamino and dialkylamino compounds.⁶ Dr. Wiley's qualifications

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and competence as an expert to state facts and opinion in this area of chemistry were not challenged.

Regarding the Wiley affidavit, the examiner stated, in his Answer:

The affidavit * * * does not appear to be pertinent to the claim now on appeal because it is directed to the processes by which the De Boer et al. and appellant's compounds are prepared, and shows nothing unobvious for the instantly claimed compound.

Concerning the Wiley affidavit, the board cited a statement of this court in *In re Riden*, 50 CCPA 1411, 318 F.2d 761, 138 USPQ 112 (1963), to the effect that "the method of making the compounds is a relevant fact to be considered in the question of obviousness of the compounds," 50 CCPA at 1415, 318 F.2d at 764, 138 USPQ at 114-115. But the board continued:

* * * This may be so but it is only one factor and, in our opinion, should never be the overriding one which appellant is here, in effect, urging.

Appellant states the first of two central questions to be decided in this rehearing as follows:

1) Appellant will admit his compounds are obvious and unpatentable *if* an obvious process is available to make them. Does it follow then that appellant's compounds are unobvious and patentable if an obvious process is *not* available to make them?

[2] Within this context, appellant simplifies that question to: Is process obviousness relevant in deciding compound obviousness?⁷

The solicitor responds to the latter characterization of the question in the affirmative, pointing out that the first question bears on the principle implicit in *In re Brown*, *supra*, that claimed compounds not distinguished in their properties over closely related prior art compounds are unpatentable thereover where the claimed compounds would be "in possession of the public" in that a process for preparing them would be obvious to those of ordinary skill in the art.

In addition, the solicitor now refers to our prior opinion in which we noted that the facts in this case are closely

analogous to those of *In re Riden*, supra, where we stated that the fact that the method of making the claimed compound is relevant, 54 CCPA at—, 379 F.2d at 1010, 154 USPQ at 172.

A recurring problem of analysis which confronted us as we prepared our previous opinion, and which still confronts us after the rehearing, has its genesis in a proper understanding of the issue as framed by appellant. In effect, appellant agrees that since the claimed product is a homolog of a known compound, it would be *prima facie* "obvious" under 35 U.S.C. 103. But this agreement is conditioned on the proviso that there is in the prior art an "obvious" process by which to make that compound.

[3] In the context of section 103, we are not permitted to fragment a claimed invention in applying that section. The clear mandate of the statute which governs our analysis requires that

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we consider the *invention as a whole* in making the determination.

[4] Thus, as we apply the statute to the present invention, we must ask first, what is the invention as a whole? Necessarily, by elementary patent law principles, it is the claimed compound, but, so considered, unless there is some known or obvious way to make the compound, the invention is nothing more than a mental concept expressed in chemical terms and formulae on a paper.

We are certain, however, that the invention as a whole is the claimed compound *and* a way to produce it, wherefore appellant's argument has substance. There has been no showing by the Patent Office in this record that the claimed compound can exist because there is no showing of a known or obvious way to manufacture it; hence, it seems to us that the "invention as a whole," which section 103 demands that we consider, is not obvious from the prior art of record.

While there are valid reasons based in public policy as to why this defect in the prior art precludes a finding of obviousness under section 103, *In re Brown*, supra, its immediate significance in the present inquiry is that it poses yet *another difference* between the claimed invention and the prior art which *must* be considered in the context of section 103. So considered, we think the differences between appellant's *invention as a whole* and the prior art are such that the claimed invention would not be obvious within the contemplation of 35 U.S.C. 103.

[5] While 35 U.S.C. 102 is not *directly* involved in the issue on review, the conditions for patentability, novelty and loss of right to patent, there stated, may have relevance as to the disclosure which must be found in the prior art to find obviousness of an invention under section 103. In determining that quantum of prior art disclosure which is necessary to declare an applicant's invention "not novel" or "anticipated" within section 102, the stated test is whether a reference contains an "enabling disclosure," in the present context, a process by which the claimed compound could be made. In *In re LeGrice*, 49 CCPA 1124, 301 F.2d 929, 133 USPQ 365 (1962), we observed that the resolution of this issue required us to determine whether, *as a matter of law*, a reference without such a disclosure constituted a statutory time bar to an applicant's right to a patent. There, the issue was founded on 35 U.S.C. 102(b), not 103, but our conclusions have a certain pertinence here. We concluded, *id.* at 1134, 301 F.2d at 936, 133 USPQ at 372:

We think it is sound law, consistent with the public policy underlying our patent law, that before any publication can amount to a statutory bar to the grant of a patent, its disclosure must be such that a skilled artisan could take its teachings in *combination with his own knowledge of the particular art and be in possession of the invention*. * * *

In *In re Brown*, supra, this court discussed *In re Von Bramer*, 29 CCPA 1018, 127 F.2d 149, 53 USPQ 345 (1942), commenting that that opinion should not be construed to encompass what had come to be called the "Von Bramer doctrine." There we stated, 51 CCPA at 1257, 329 F.2d at 1009, 141 USPQ at 247:

* * * This doctrine, which appears to have resulted from *In re Von Bramer et al.*, supra, seems over a period of years to have been tailored in some quarters to a principle which defeats the novelty of a

chemical compound on the basis of a mere printed conception or a mere printed contemplation of a chemical "compound" *irrespective of the fact that so-called "compound" described in the reference is not in existence or that there is no process shown in the reference for preparing the compound, or that there is no process known to a person having ordinary skill in the relevant art for preparing the compound.* In other words, a mere formula or a mere sequence of letters which constitute the designation of a "compound," is considered adequate to show that a compound in an application before the Patent Office, which compound is designated by the same formula or the same sequence of letters, is old. We do not think that the Von Bramer case should be so construed. [Emphasis added.]

To the extent that anyone may draw an inference from the Von Bramer case that the *mere* printed conception or the *mere* printed contemplation which constitutes the designation of a "compound" is sufficient to show that such a compound is old, regardless of whether the compound is involved in a 35 U.S.C. 102 or 35 U.S.C. 103 rejection, we totally disagree. * * * [Footnotes omitted.]

We concluded, relying on *In re Le Grice*, supra, and *E. I. du Pont de Nemours & Co. v. Ladd*, 328 F.2d 547, 140 USPQ 297 (D.C. Cir. 1964), that the "true test of any prior art relied on to show or suggest that a chemical compound is old, is whether the prior

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art is such as to place the disclosed 'compound' in the *possession of the public*. " 51 CCPA at 1259, 329 F.2d at 1011, 141 USPQ at 249.

While *In re Le Grice* was bottomed on an issue arising under 35 U.S.C. 102 where the reference was a "printed publication," that test, in our view, is also properly applicable to issues arising under 35 U.S.C. 103. See *In re Brown*, supra (pertinent portion quoted above); *Deutsche Gold-Und Silber-Scheideanstalt v. Commissioner*, 251 F.Supp. 624, 629-630, 148 USPQ 412, 416 (D.D.C. 1966), affirmed, ___ F.2d ___, 157 USPQ 549 (D.C. Cir. 1968).

[6] Thus, upon careful reconsideration it is our view that if the prior art of record fails to disclose or render obvious a method for making a claimed compound, at the time the invention was made, it may not be legally concluded that the compound itself is in the possession of the public.⁸ In this context, we say that the absence of a known or obvious process for making the claimed compounds overcomes a presumption that the compounds are obvious, based on close relationships between their structures and those of prior art compounds.

The second aspect of the questions presented by this rehearing involves the issue of whether the burden is on the Patent Office to provide the evidence on which to predicate process obviousness.

35 U.S.C. 101 states, in its preamble, that an applicant is *entitled* to a patent *unless* certain patent-defeating provisions are met. The substantive patent-defeating provisions are encompassed in 35 U.S.C. 100-103.

[7] As we have stated, the Patent Office search resulted in citation of the De Boer reference which, under the prevailing law, rendered appellant's claimed compounds *prima facie* obvious. In other words, its citation shifted to appellant the burden of going forward with contrary evidence. Appellant filed the affidavit of Dr. Wiley which points out as a fact that De Boer—the only reference being relied on—does not disclose a process for producing the different compounds here claimed.

We think that portion of the Wiley affidavit set forth, supra note 6, states facts which were legally sufficient to overcome the position of the Patent Office as to the legal effect under section 103 of the De Boer reference.⁹ Appellant's responsibility to overcome this reference as a "patent-defeating" reference under section 103 at that point in the prosecution was only to overcome De Boer as a reference pertinent to the issue of obviousness under section 103.

We think the Wiley affidavit is clearly sufficient for this purpose. The affidavit points out that there is no indication in the De Boer patent that the fermentation process used to produce De Boer's compounds could be used to produce appellant's compounds. Since we are of the view that the method for making the compounds is an

integral part of the "invention as a whole" which we must consider under section 103, we conclude that the burden of going forward with proofs to support its position as to obviousness of the claimed invention shifted to the Patent Office upon appellant's filing of the Wiley affidavit.

The failure of the Patent Office to produce such evidence requires that the decision of the board be *reversed*.
WORLEY, Chief Judge, did not participate.

Footnotes

Footnote 1. Claim 1 in Serial No. 30,770, filed May 23, 1960, for "9-D-Psicofuranosylpurine and 6-Substituted Derivatives." Claims 2 and 11-25 stand allowed.

Footnote 2. Patent No. 3,094,460, issued June 18, 1963 on an application filed January 20, 1959.

Footnote 3. Appellant, in effect, admits that there is such a "structural similarity" between his claimed compounds and the prior art compounds as to raise an "inference of fact" that they are not patentable within the meaning of 35 U.S.C. 103. See *In re Papesch*, 50 CCPA 1084, 315 F.2d 381, 137 USPQ 43 (1963); *In re Victor Mills*, 47 CCPA 1185, 281 F.2d 218, 126 USPQ 513 (1960).

Footnote 4. Such a showing often has been treated by this court as overcoming a case of "prima facie obviousness" or the "inference of fact" that the compounds are obvious. See, e.g., *In re Papesch*, supra note 3 and cases cited therein.

Footnote 5. For the applicability of *In re Brown*, supra, to other factual contexts, see *In re Bird*, 52 CCPA 1290, 1294, 344 F.2d 979, 982, 145 USPQ 418, 420 (1965); *In re Sheppard*, 52 CCPA 859, 864, 339 F.2d 238, 242, 144 USPQ 42, 45 (1964); *Dix-Seal Corp. v. New Haven Trap Rock Co.*, 236 F.Supp. 914, 921, 144 USPQ 57, 64 (D.C. Conn. 1964).

Footnote 6. After setting forth his qualifications and stating that he had read and understood both appellant's application and the prior art patent, Dr. Wiley stated:

THAT, 6-amino-9-D-psicofuranosylpurine is a systematic name for "psicofuranine" which is disclosed in column 6, lines 46-62 of the aforesaid patent;

THAT, according to the aforesaid patent, 6-amino-9-D-psicofuranosylpurine is produced by a fermentation process involving the action of a specific micro-organism, *S. hygroscopicus* var. *decoyinine*, in certain aqueous nutrient media;

THAT, *there is no indication in the aforesaid patent [De Boer] that the aforesaid fermentation process could be used to produce 6-lower-alkylamino-9-D-psicofuranosylpurines, 6-di-lower-alkylamino-9-D-psicofuranosylpurines, or other 6-substituted-amino-9-D-psicofuranosylpurines;*

THAT, he does not believe the aforesaid fermentation process could be adapted to the production of the aforesaid 6-lower-alkylamino-9-D-psicofuranosylpurines, 6-di-lower-alkylamino-9-D-psicofuranosylpurines, or other 6-substituted-amino-9-D-psicofuranosylpurines;

THAT, *the aforesaid 6-amino-9-psicofuranosylpurine could not be transformed by direct chemical substitution of the 6-amino group to a 6-lower-alkylamino-9-D-psicofuranosylpurine, a 6-di-lower alkylamino-9-D-psicofuranosylpurine, or other 6-substituted-amino-9-D-psicofuranosylpurines, and that such transformations could be carried out only by a complex multi-step procedure such as that described in the aforesaid patent application Serial No. 30,770. [Emphasis added.]*

Footnote 7. To this extent, appellant has misstated his argument. That process obviousness is relevant in this context is clear from *In re Riden*, supra. See also *In re Chapman*, 53 CCPA 978, 357 F.2d 418, 148 USPQ 711 (1966); *In re Burt*, 53 CCPA 929, 356 F.2d 115, 148 USPQ 548 (1966); *In re Schechter*, 40 CCPA 1009, 205 F.2d 185, 98 USPQ 144 (1963).

We think appellant really means to say that the question is whether a claimed compound may be said to be legally obvious when no process for making that compound is shown in the prior art relied upon to establish legal

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obviousness under section 103.

Footnote 8. In *Phillips Petroleum v. Ladd*, 219 F.Supp. 366, 138 USPQ 421 (D.D.C. 1963), in considering a rejection arising under 35 U.S.C. 102, the District Court agreed with this court that the mere naked statement of the invention does not put anyone in possession of the invention. That court was careful to note that no process had been shown in the reference for preparing the compound and that no process was known to one of ordinary skill in the art for preparing the compound.

In *Ex parte Wall*, 156 USPQ 95 (P.O. Bd. App. 1964), the board considered a rejection under 35 U.S.C. 102 of a claim reading "Perfluorostyrene." In reversing the examiner, the board commented that the examiner did not contend that the reference disclosed how perfluorostyrene is made, nor did he point to any extraneous evidence which would indicate that those skilled in the art knew how to make that compound.

Footnote 9. We think this approach to be eminently fair to all parties and in accord with the opinion of the Supreme Court in *Graham*, in its requiring that all of the pertinent evidence be considered while yet leaving the primary responsibility for sifting out unpatentable material with the Patent Office, *Graham v. John Deere Co.*, 383 U.S. 1 at 18, 148 USPQ at 467.

It would be practically impossible for an applicant to show that all known processes are incapable of producing the claimed compound.

Dissenting Opinion Text

Dissent By:

KIRKPATRICK, Judge, dissenting.

I am unable to agree with the result reached by the majority. The reasons for my dissent appear in the overruled opinion *In re Hoeksema*, 54 CCPA 1618, 379 F.2d 1007, 154 USPQ 169 (1967).

Footnote * Senior District Judge, Eastern District of Pennsylvania, sitting by designation.

- End of Case -

In re WESSLAU
(CCPA)
147 USPQ 391
Decided Nov. 26, 1965
Appl. No. 7447
U.S. Court of Customs and Patent Appeals

Headnotes

PATENTS

1. Patentability—Composition of matter (§ 51.30)

Claims to process of polymerizing ethylene are not rejected on theory that applicant's catalyst system can be met merely by substitution of groups from two prior patents on the corresponding components of a third prior system since no one of the references suggests such a substitution, quite apart from the result which would be obtained thereby; such piecemeal reconstruction of prior art patents in light of applicant's disclosure is contrary to 35 U.S.C. 103.

2. Patentability—Invention—In general (§ 51.501)

Question in cases within ambit of 35 U.S.C. 103 is whether subject matter as a whole would have been obvious to one of ordinary skill in the art following teachings of prior art at time invention was made; it is impermissible within framework of section 103 to choose from any one reference only so much of it as will support a given position, to exclusion of other parts necessary to full appreciation of what reference fairly suggests to one of ordinary skill in the art.

Particular patents--Polyethylene

Wesslau, Process for the Production of Polyethylene with Narrow Distribution of the Molecular Weight, claims 35 to 43 of application allowed.

Case History and Disposition:

Appeal from Board of Appeals of the Patent Office.

Application for patent of Hermann Wesslau, Serial No. 753,872, filed Aug. 8, 1959; Patent Office Group 140. From decision rejecting claims 35 to 43, applicant appeals. Reversed.

Attorneys:

ARNOLD SPRUNG, New York, N.Y., and ARNOLD B. CHRISTEN, Washington, D. C., for appellant.

CLARENCE W. MOORE (FRED W. SHERLING of counsel) for Commissioner of Patents.

Judge:

Before WORLEY, Chief Judge, and RICH, MARTIN, SMITH, and ALMOND, Associate Judges.

Opinion Text**Opinion By:**

ALMOND, Judge.

This appeal is from the decision of the Board of Appeals affirming the rejection of claims 35-43 ¹ in appellant's application ² entitled "Process for the Production of Polyethylene With Narrow Distribution of the Molecular Weight." No claims have been allowed.

The invention relates to a process of polymerizing ethylene utilizing a Ziegler-type catalyst system to produce solid polyethylene. Both appellant and the Patent Office have treated the appealed process claims as standing or falling together, and we will do the same. Claim 35, from which the remaining claims depend, is illustrative and reads as follows:

35. In the process of polymerizing ethylene to a solid polymer having a high molecular weight and a narrow molecular weight distribution range, the improvement which comprises polymerizing ethylene in the presence of a polymerization catalyst con

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sisting essentially of a mixture of titanium trichloride, at least one compound of tetravalent titanium $Ti(R)_4$ and at least one organic aluminum compound soluble in a liquid hydrocarbon and having the general formula $R'Al(R)_2$ in which R' is alkyl and R is selected from the group consisting of halogen, alkoxy and aroxy radicals, wherein between said tetravalent titanium compound and said organic aluminum compound there is present in said mixture at least one halogen atom and at least one member selected from the group consisting of alkoxy and aroxy radicals.

According to appellant's disclosure, polyethylene of high molecular weight may be produced by what has become known in the art as the Ziegler polymerization process. Analysis of the polyethylene so produced has revealed that although the *average* molecular weight of the polymer is high, a fairly large proportion of the individual polymer chains have a relatively low molecular weight. These low molecular weight fractions are particularly unfavorable for such properties as impact bending strength, rubbing, and fatigue. Appellant has discovered that the proportion of the lower molecular weight chains can be reduced, thereby narrowing the

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molecular weight distribution, by employing a three-component catalyst system in which either the $Ti(R)_4$ or $R'Al(R)_2$ contains an alkoxide or aroxide moiety.

The references relied on are:

Anderson 2,862,917 December 2, 1958

Muehlbauer 2,905,661 September 22, 1959

Ruhrchemie (Belgian) 553,694 June 24, 1957

The Ruhrchemie patent relates to a process for producing polyethylene of a desired molecular weight employing certain specified catalyst systems. The pertinent portion of the patent specification reads as follows:

*** when high molecular weight [polyethylene] products are to be obtained ***, the employed mixtures consist of aluminum alkyl compounds and/or halides of aluminum alkyl with quantities of titanium trichloride of at least 0.01 mole *** and quantities of titanium tetrachloride lower than 0.01 mole ***; on the other hand, when materials having low molecular weight are to be obtained the employed mixtures consist of aluminum alkyl and/or halide of aluminum alkyl with more than 0.1 mole *** of titanium tetrachloride per mole of aluminum alkyl and/or halide of aluminum alkyl, and with titanium trichloride at the rate of at least 0.1 mole, preferably 0.3-1 mole approximately per mole of aluminum alkyl and/or halide of aluminum alkyl.

The Anderson patent relates to a process of polymerizing ethylene whereby control over the weight average molecular weight of the polymer and the *molecular weight distribution* of the polymer is achieved by adhering to process conditions which insure the solubility of the ethylene during polymerization. The process employs coordination catalysts of titanium:

*** obtained by admixing a trivalent or tetravalent titanium compound of the class consisting of titanium salts and titanium alkoxides with a compound having at least one metal-to-hydrocarbon bond, such as metal alkyls, suitable compounds being lithium aluminum alkyls, aluminum alkyls, Grignard reagents, alkyl aluminum halides, tin alkyls, etc. ***

Anderson further states:

*** the steady state compliance [an indicia of molecular weight distribution] will vary from 3 to 7 when the critical conditions of the process of the present invention are maintained and will rise to a range of 12 to 28 when the polymerization is carried out at conditions other than required by the process of the present invention. ***

Muehlbauer relates to a process for producing high molecular weight polyolefins employing a two-component catalyst system consisting of certain metal halides and a compound of the formula $XAlR(OR')$, where X is halogen, and R and R' are the same or different alkyl, cycloalkyl, or aryl radicals. Titanium trichloride and titanium tetrachloride are specifically disclosed as suitable metal halides.

The sole issue in this case is obviousness under 35 U.S.C. 103.

Appellant's principal contention is that:

*** since none of the reference[s] either singly or in combination teach a control of the molecular weight distribution range by specific selection of catalyst components, or even that the nature or composition of the catalyst could have an effect on this molecular weight distribution range, the subject matter of the invention as a whole could not possibly be obvious from the references. ***

We agree. Appellant's specification contains ten examples in which various three-component catalyst systems were utilized in the polymerization of ethylene. The systems set forth in three of these examples consisted of (1) titanium trichloride, (2) titanium tetrachloride, and (3) diethyl aluminum monochloride in various molar ratios.

These fall within the catalyst systems disclosed by Ruhrchemie. The U value, which according to appellant's specification is a measure of the molecular weight distribution, ranges from 6.3 to 12.8 for such catalysts. In the remaining seven examples, catalyst systems covered only by the appealed claims were employed, with the nonuniformity value U^3 for the resultant polyethylene ranging from 2.6 to 3.9. We believe this to be a convincing demonstration that the alkoxide or aroxide moiety, when present in the catalyst systems of the appealed claims, possesses the property of conferring a significant degree of control over the ultimate molecular weight distribution of polyethylene. This property is neither taught nor suggested by the prior art.

The reasoning of the examiner and the board appears to be as follows: Ruhrchemie discloses a titanium trichloride - titanium tetrachloride - mono - ethyl aluminum dichloride system. This differs from appellant's system only in the latter's use of an alkoxide or aroxide group on either the tetravalent titanium or aluminum component or both. Since Anderson shows a tetravalent titanium compound containing an alkoxide group and Muehlbauer shows an aluminum compound containing an alkoxide group, appellant's catalyst system can be met merely by substitution of such alkoxide groups on the corresponding components of the Ruhrchemie system.

[1] The fallacy of this reasoning is that no one of the references *suggests* such a substitution, quite apart from the result which would be obtained thereby. Such piecemeal reconstruction of the prior art patents in the light of appellant's disclosure is contrary to the requirements of 35 U.S.C. 103. In re Rothermel, 47 CCPA 866, 276 F.2d 393, 125 USPQ 328.

[2] The ever present question in cases within the ambit of 35 U.S.C. 103 is whether the subject matter as a whole would have been obvious to one of ordinary skill in the art following the *teachings* of the prior art at the time the invention was made. It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The Anderson patent is the only reference before us which recognizes the desirability of producing polyethylene with a narrow molecular weight distribution range. Were one to follow the teachings of that patent in its entirety, he would be led to believe that control over the molecular weight distribution of polyethylene was gained independently of the catalyst system, a belief untenable in light of appellant's disclosure.

Both the board and the solicitor apparently assert the position that it is incumbent upon appellant to show that his results are outstanding as compared with the results accomplished by Anderson and Muehlbauer. If this is construed as requiring appellant to show unexpected results accruing from his claimed process, we think he has met the requirement. We perceive no teaching in the prior art of record suggesting that an alkoxide or aroxide moiety in a Ziegler-type catalytic system would produce the results obtained by appellant's process.

The decision of the board is *reversed*.

Footnotes

Footnote 1. Appellant withdrew the appeal with respect to the only product claim 44, which was drawn to a polyethylene having a narrow molecular weight distribution characterized by a nonuniformity value U of magnitude between 2 and 4.

Footnote 2. Serial No. 753,872, filed August 8, 1958.

Footnote 3. Appellant's specification contains the following description of the nonuniformity value U:

* * * the so-called non-uniformity is used for characterising the range of distribution of the molecular weights. According to G. V. Schulz in H. A. Stuart's *Die Physik der Hochpolymeren*, 2nd vol., the macromolecule in solutions is given on page 754 as:

Graphic material consisting of a complex mathematical formula set at this point is not available. See text in hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

\bar{M}_w and \bar{M}_n can be calculated from the molecular weight distribution by current methods (G. V. Schulz and M. Marx: Makromolekulare Chemie XIV (1954), pages 53-64).

- End of Case -

Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.**(CA FC)****230 USPQ 416****Decided July 14, 1986****No. 85-2578****U.S. Court of Appeals Federal Circuit**

Headnotes**PATENTS****1. Patentability -- Invention -- In general (§ 51.501)**

Federal district court erred by holding laser-marked contact lens patent to be invalid, in view of court's failure to grant patent its statutory presumption of validity, its over-reliance upon inventor's alleged opinion as to non-obviousness, its misuse of such opinion as substitute for determining level of skill of hypothetical person of ordinary skill, its use of improper hindsight analysis, its failure to consider prior art reference in its entirety, and its erroneous reliance upon irrelevant experiments.

2. Infringement -- Tests of -- Comparison with claim (§ 39.803)

Federal district court erred in its finding of non-infringement of contact lens patent, since court, in considering whether accused lenses were "smooth" like patented lenses, did not construe meaning of term "smooth" by resorting to specification, but instead distorted patent's claims by assessing smoothness according to approach that exceeded level of smoothness required in claim.

Particular patents -- Contact Lenses

4,194,814, Fischer, McCandless, and Hager, Transparent Ophthalmic Lens Having Engraved Surface Indicia, holding of invalidity and non-infringement vacated.

Case History and Disposition:

Appeal from District Court for the Northern District of California, Aguilar, J.; 226 USPQ 780 .

Action by Bausch & Lomb, Inc., against Barnes-Hind/Hydrocurve, Inc., and Barnes-Hind International, Inc., for patent infringement, in which defendants counterclaim for declaration of patent invalidity and non-infringement. From judgment for defendants, plaintiff appeals. Vacated and remanded.

Attorneys:

Laurence H. Pretty, and Pretty, Schroeder, Brueggemann & Clark, both of Los Angeles, Calif. (Craig S. Summers, Bernard D. Bogdin, and Howard S. Robbins, all of Rochester, N.Y., on the brief) for appellant.

John M. Calimafde, and Hopgood, Calimafde, Kalil, Blaustein & Judlowe, both of New York, N.Y. (Eugene J. Kalil, Dennis J. Mondolino, and Gilbert W. Rudman, all of Tuckahoe, N.Y., on the brief) for appellees.

Judge:

Before Markey, Chief Judge, Friedman, Circuit Judge, and Nichols, Senior Circuit Judge.

Opinion Text

Opinion By:

Nichols, Senior Circuit Judge.

Appellant Bausch & Lomb, Inc. filed suit in the United States District Court for the North

ern District of California, alleging that appellee Barnes-Hind/Hydrocurve, Inc. and Barnes-Hind International, Inc. (hereinafter Barnes-Hind) infringed patent No. 4,194,814 ('814 patent) in the manufacture and sale of its laser-marked contact lens. Barnes-Hind denied infringement and counterclaimed that the '814 patent was invalid, void, and unenforceable. In No. C-83-20283-RPA, Judge Aguilar found the patent invalid for obviousness and not infringed. We vacate and remand.

Appellee Barnes-Hind relied to a large extent on deposition testimony which was never introduced into evidence. Because this testimony was not in evidence, it would have been improper for us to consider it and, therefore, we did not. This eliminated much of Barnes-Hind's arguments on appeal.

Background

1. The Technology

Vision correcting contact lenses have become familiar; hard contact lenses were introduced in the early 1950's and soft lenses in 1971. Toric contact lenses, which correct for the eye condition known as astigmatism, have a similar history of usage: hard lenses from the early 1950's and soft from the first half of the 1970's. Toric lenses differ from standard contact lenses in having a prism base, *i.e.*, one edge portion of the lens is thicker. Proper

prescription and fitting of toric lenses on the cornea of the eye requires alignment of a central lens axis with this prism base. Markings on the contact lens surface greatly facilitate the fitting process.

Inks and other substances have been used since the early 1950's, however, those marking procedures suffer several disadvantages: difficulty of accurate application with possible FDA disapproval; possibility of dissolution, blurring, and allergic reactions. Mechanical marking, as with a sharp scribing tool or an abrading tool such as a dental bur, is also available, but not without its problems: inaccurate and inconsistent positioning of the mark, lens damage, inadequate visibility, and the expense and time involved.

2. The Patent

The '814 patent, entitled Transparent Ophthalmic Lens having Engraved Surface Indicia, discloses an engraved contact lens and provides a method of engraving using a source of high intensity electro-magnetic energy, such as a laser. The mark, not as deep as the lens is thick, is surrounded by a smooth surface of unsublimated or unaffected polymer material with the result that edges of the markings do not inflame or irritate the eyelid of the lens wearer.

The claims in suit are 1, 2, and 7. Claim 1 provides:

An ophthalmic lens adapted to be placed in direct contact with eye tissue formed of a transparent cross-linked polymer material, said lens being characterized by identifying indicia engraved in a surface thereof by subjecting said lens to a beam of radiation emerging from a laser having an intensity and wavelength at least sufficient to sublimate said polymer and form depressions in said lens surface to a depth less than the thickness of said lens, said lens having a smooth surface of unsublimated polymer material surrounding said depressions, and by varying in a predetermined manner the point at which said laser beam impinges upon said lens surfaces to engrave said identifying indicia in said lens surface.

Claim 2 depends from claim 1 with the limitation that the lens is formed by a cross-linked hydrophilic (water loving) polymer. Claim 7, a product claim, is similar to claim 1 but defines the depressions as relieved zones.

3. The Dispute

In February 1976, Mr. Donald Hager, then production manager at the Milton Roy Company, a manufacturer of soft contact lenses which was purchased by appellant Bausch & Lomb in 1979, sent to Carco, Inc., a distributor of laser equipment, six soft contact lenses for laser marking. At least two lenses were successfully marked. Around September 1976, Dr. David Fisher and Mr. James A. McCandless, also of Milton Roy Company, met with Mr. Hager to debrief him on the work. Soon thereafter, Mr. Hager resigned.

Dr. Fisher and Mr. McCandless continued to work on the lens-marking system, and in November 1977 filed an application for the patent in suit, listing themselves and Mr. Hager as inventors. Mr. Hager declined to execute the patent application, being at that time the employee of another lens manufacturing company, Sauflon International, Inc. and saying that he had not "invented anything in connection with laser marking of contact lens." He further said that he could not execute documents, under oath or otherwise, that represent the contrary. The patent and Trademark Office (PTO) initially, and on a second occasion, rejected all the claims as obvious over two prior art U.S. patents to Brucker (No. 3,833,786) (teaching the use of a laser to fenestrate, i.e., make holes, in contact lens to allow circulation of fluid through the lens) and to Caddell (No. 3,549,733) (disclosing the use of a laser to remove plastic from the surface of a printing plate to form a pattern). The PTO later issued the patent in 1980 as limited to a transparent cross-linked polymer having a smooth surface around the mark. Mr. Hager

did sign as inventor in 1982. Meanwhile, Milton Roy commenced manufacture and marketing of laser-marked soft contact lenses in 1978.

Barnes-Hind's predecessor, Continuous Curve, Inc., introduced under the trademark HYDROCURVE a line of soft toric lenses around 1975-76 that were marked with an indentation by a bur. In 1981, Barnes-Hind offered a

soft toric lens marked by a laser.

Bausch & Lomb filed suit, contending that certain laser-marked contact lenses manufactured and sold by Barnes-Hind infringe claims 1, 2, and 7 of the '814 patent. Barnes-Hind denied infringement and counterclaimed that the patent was invalid, void, and unenforceable. The parties narrowed the issue of infringement to whether the marks on the HYDROCURVE lenses are surrounded by a smooth surface of unsublimated polymer material with respect to claims 1 and 2 or a smooth and unaffected surface for claim 7.

4. The District Court Proceedings

The district court determined that Barnes-Hind "proved by clear and convincing evidence that the patent in suit (4,194,814) and each of its claims is invalid and therefore void." It concluded that the differences between the claims and the prior art would have been obvious, finding that "the fact that the claimed subject matter of the patent in suit was obvious to Mr. Hager is most indicative of the obviousness of the invention," and that "Dr. Brucker's experiments in laser marking contact lenses are further evidence in support of this court's finding of obviousness." The court further concluded that scanning electron microscope (SEM) photographs, showing "that the surface of these lenses surrounding the laser mark are not 'smooth and unsublimated' or 'unaffected' as those terms were defined by plaintiff [appellant] during the processing of the patent in suit," demonstrated lack of infringement in any case. Bausch & Lomb appealed.

Opinion

The judgment is premised on several legal errors: (1) disregard of the presumption of validity established by 35 U.S.C. § 282; (2) absence of the factual findings on the four inquiries mandated by *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966); and (3) improper claim construction leading to the conclusion of noninfringement. We vacate the court's opinion and remand for a determination consistent with this opinion.

1. Presumption of Validity

A patent shall be presumed valid, and each claim shall be presumed valid independently of the validity of other claims. 35 U.S.C. § 282. The burden is on the party asserting invalidity to prove it with facts supported by clear and convincing evidence. *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 872, 228 USPQ 90, 97 (Fed. Cir. 1985); *Jones v. Hardy*, 727 F.2d 1524, 220 USPQ 1021 (Fed. Cir. 1984).

The record contains no reference to this statutory presumption of validity, nor does it appear that the district court considered separately the validity of the three claims at issue. By merely holding that "defendants have proved by clear and convincing evidence that the patent in suit (4,194,814) and each of its claims is invalid and therefore void," the district court improperly denied the '814 patent its statutory presumption of validity as to each claim.

The district court thought the examiner had been misled. Barnes-Hind argued and argues here that Bausch & Lomb (or rather its later acquired company Milton Roy) misled the examiner during prosecution. Appellees assert that "if the examiner had been correctly and forthrightly informed of Hager's and McCandless' opinions, the chemistry of the Brucker lens, and the teaching of the Caddell patent, he would not have issued the patent." The record, however, does not support this assertion.

The examiner did know of Hager's temporary refusal to execute the application during prosecution and, as discussed more fully *infra*, a determination of nonobviousness is based, *inter alia*, on the opinion of a hypothetical person of ordinary skill in the art, not on the inventors' opinion. The weight to be attached to Hager's refusal cannot be exaggerated as the court below has done without clear error in view of Hager's self interest as an employee of a competitor and his later change of position. Instances of inventors refusing even to cooperate in obtaining issuance of a patent to be owned by an assignee are common and machinery is provided in 37 C.F.R. § 1.47 to deal with them. Section 1.47 provides that either a joint inventor or a proper assignee may file the application without the consent or signature of the inventor, just so the oath or declaration is accompanied by a petition including proof of pertinent facts. It is clear, therefore, that the PTO does not allow the inventor to erect

that type of obstacle to obtaining patent protection. Such forethought is necessary, as otherwise an inventor's changed self interest might nullify a proper assignment. The district court's heavy reliance on Mr. Hager's assertions, if persisted in, would allow a co-inventor another chance at sabotage if the first effort has failed.

Finally, the examiner, who with the deference we owe governmental officials we assume has some expertise in interpreting the refer

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ences and some familiarity with the level of skill in the art, *American Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359, 220 USPQ 763, 770 (Fed. Cir.), *cert. denied*, ___ U.S. ___, 105 S.Ct. 95, 224 USPQ 520 (1984), did have the Brucker and Caddell patents before him. Barnes-Hind's "misleading the examiner" contention is insufficiently supported to overcome the presumption of validity.

As a final matter, we recognize, as the district court did not, that when the prior art before the court is the same as that before the PTO, the burden on the party asserting invalidity is more difficult to meet. *American Hoist*, 725 F.2d at 1359, 220 USPQ at 770.

2. *Graham Findings*

Obviousness under 35 U.S.C. § 103 is a question of law based on the underlying factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966): (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art; and (4) objective evidence of secondary considerations. *See, e.g., Loctite*, 781 F.2d at 872, 228 USPQ at 97-98.

The *Loctite* court further stated:

In patent cases, the need for express *Graham* findings takes on an especially significant role because of an occasional tendency of district courts to depart from the *Graham* test, and from the statutory standard of obviousness that it helps determine, to the tempting but forbidden zone of hindsight. Thus we must be convinced from the opinion that the district court actually applied *Graham* and must be presented with enough express and necessarily implied findings to know the basis of the trial court's opinion.

Id., 228 USPQ at 98.

Here, as in *Loctite* and in *Jones*, we are not convinced that the district court applied the *Graham* findings. Instead, it found Mr. Hager's opinion that the subject matter was obvious "most indicative of the obviousness of the invention." This was legal error.

Unlike the district court, we have the benefit of the very clear exposition of the law in *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 454, 227 USPQ 293, 297-98 (Fed. Cir. 1985):

The issue of obviousness is determined entirely with reference to a *hypothetical* "person having ordinary skill in the art." It is only that hypothetical person who is presumed to be aware of all the pertinent art. The actual inventor's skill is irrelevant to this inquiry, and this is for a very important reason. The statutory emphasis is on a person of *ordinary* skill. Inventors, as a class, according to the concepts underlying the Constitution and the statutes that have created the patent system, possess something -- call it what you will -- which sets them apart from the workers of *ordinary* skill, and one should not go about determining obviousness under § 103 by inquiring into what *patentees* (i.e., inventors) would have known or would likely have done, faced with the revelation of references. [Emphasis in original.]

[1] In this regard then, the district court erred at least three times: it relied too heavily on the alleged opinion of one who was an inventor and patentee, and misused that opinion as a substitute for determining the level of skill of the hypothetical person of ordinary skill and what that person would have been able to do when in possession of the prior art, the scope and contents of which the court should also have determined.

The court also engaged in improper hindsight analysis to conclude the '814 patent would have been obvious. The court essentially adopted Barnes-Hind's argument that "the concept of forming ridgeless depressions having

smooth rounded edges using a laser beam to vaporize the material is explicitly disclosed in the Caddell patent. *This is exactly the same process claimed in the patent-in-suit and practiced by the plaintiff.*"

Barnes-Hind selected a single line out of the Caddell specification to support the above assertion: "one way in which this [forming ridgeless depressions] can be achieved is to use a laser with high enough intensity to vaporize the plate material without melting it." Col. 5, lines 53-54. This statement, however, was improperly taken out of context. As the former Court of Customs and Patent Appeals held:

It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art.

In re Wesslau, 353 F.2d 238, 241, 147 USPQ 391, 393 (CCPA 1965); *see also In re Mercer*, 515 F.2d 1161, 1165-66, 185 USPQ 774, 778 (CCPA 1975).

A full appreciation of Caddell's statement requires consideration of the immediately following sentences in the same paragraph and the paragraph after that. Viewed in that context, it is apparent that Caddell's ideal printing plate would have no ridges around the depression. The use of a high intensity laser is offered as a possible means to achieve the goal but is limited by several disadvantages. To overcome these disadvantages, Caddell suggests the use of a special class of polymer that forms ridgeless depressions. A complete read

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ing demonstrates quite clearly that Caddell is setting up a strawman and pointing out its disadvantages to highlight the advantages of Caddell's invention, that special class of polymers. The district court improperly viewed an isolated line in Caddell in light of the teaching of the '814 patent to hold for obviousness. This is improper hindsight analysis.

The district court also failed to consider the Caddell reference in its entirety and thereby ignored those portions of the reference that argued against obviousness. *W. L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed. Cir. 1983), *cert. denied*, ___ U.S. ___, 105 S. Ct. 172 (1984). Caddell compared the ridge formation of his special class of polymers against, *inter alia*, Lucite, a copolymer composed of ethyl acrylate with methylmethacrylate -- very similar to the chemical referred to in the '814 patent -- and found that *only* his special class formed depressions without ridges. Thus, Caddell actually taught away from laser etching of soft contact lenses.

As further evidence of obviousness, the district court relied on Dr. Brucker's experiments in laser marking contact lenses. This too was error, in this case clearly erroneous factual error. The record does not support, indeed it contradicts, the supposition that Dr. Brucker had engaged in laser marking of soft contact lenses at the time of the present invention. On page 385 of the Appendix, in reply to Mr. Calimafde's question "when did Continuous Curve begin to experiment with laser marking of soft contact lenses?", Dr. Brucker replied "I believe it was in '79 - '79, '80, somewhere in that area." The filing date of the '814 patent was November 10, 1977. Brucker's 3,833,786 patent for a method of fenestrating (putting windows in) contact lenses applies according to its claims to such lenses, both soft and hard. However, the record reflects that the need for such fenestration was as a mode of escape for fluid accumulating between the lens and the eye. Such a need does not exist respecting the soft lenses, the principal subject of the claims in suit, of which claim 2 is expressly limited to soft lenses. They, being hydrophilic, absorb the fluid.

In sum, the district court improperly determined the '814 patent was obvious: it failed to make the Graham inquiries, it improperly focused on what was obvious to the inventor, it engaged in hindsight analysis, and it considered evidence that was not prior art. This court, as an appellate court, may not make the required Graham factual findings, and must therefore remand that determination to the district court. The district court should not ignore the four-part analysis the authorities require.

a. The scope and content of prior art

To determine whether a reference is within the scope and content of the prior art, first determine if the reference is within the field of the inventor's endeavor. If it is not, then next consider whether the reference is reasonably pertinent to the particular problem with which the inventor was involved. *In re Richard M. Deminski*, 230 USPQ 313, 315, No. 85-2267, slip op. at 9 (Fed. Cir. July 8, 1986); *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed. Cir. 1983). *Orthopedic Equipment Co., Inc. v. United States*, 702 F.2d 1005, 1008-11, 217 USPQ 193, 196-97 (Fed. Cir. 1983) focused on the claims in suit, the art the PTO applied to the claims, and the nature of the problem confronting the inventor. Further, the art must have existed as of the date of invention, presumed to be the filing date of the application until an earlier date is proved.

b. The differences between the claimed invention and the prior art

The court must view the claimed invention *as a whole*. See, e.g., *Jones*, 727 F.2d at 1527-28, 220 USPQ at 1024. We add, as a cautionary note, that the district court appeared to distill the invention down to a "gist" or "core," a superficial mode of analysis that disregards elements of the whole. It disregarded express claim limitations that the product be an ophthalmic lens formed of a transparent, cross-linked polymer and that the laser marks be surrounded by a smooth surface of unsublimated polymer. See also, *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 221 USPQ 929 (Fed. Cir. 1984).

c. Level of ordinary skill in the art

In *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 697, 218 USPQ 865, 868-69 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984), the court listed six factors relevant to a determination of the level of ordinary skill: educational level of the inventor, type of problems encountered in the art, prior art solutions, rapidity of innovation, sophistication of technology, and educational level of active workers in the field. As to educational level of the inventor, see *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 227 USPQ 293 (Fed. Cir. 1985); *Orthopedic Equipment Co. v. All Orthopedic Appliances*, 707 F.2d 1376, 1382, 217 USPQ 1281, 1285 (Fed. Cir. 1983) ("Although the educational level of the inventor may be a factor in determining the level of ordinary skill in the art, it is by no means conclusive.")

d. Objective indicia of obviousness

Such "secondary considerations," when present, must always be considered. *Stratoflex*, 713 F.2d at 1538, 218 USPQ at 878-79. See also *Cable Electric Products, Inc. v. Genmark*,

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Inc., 770 F.2d 1015, 1026-28, 226 USPQ 881, 887-88 (Fed. Cir. 1985). Such evidence includes commercial success, long felt but unresolved needs, and failed attempts. *Perkin-Elmer Corp. v. Computervision Corp.*, 732 F.2d 888, 895-96, 221 USPQ 669, 675 (Fed. Cir.), *cert. denied*, ___ U.S. ___, 105 S.Ct. 187, 225 USPQ 792 (1984).

We shall vacate the trial court's opinion and remand for an obviousness determination consistent with this opinion.

3. Infringement

The parties narrowed the infringement issue for trial to the question whether the surface of Barnes-Hind lenses surrounding the laser mark is "smooth and unsublimated" or "unaffected." The district court concluded that "the laser-engraved depressions in the surface of the HYDROCURVE II lenses have been examined by scanning electron microscope. These photographs show that the surface of these lenses surrounding the laser mark are not 'smooth and unsublimated' or 'unaffected' as those terms were defined by plaintiff during the prosecution of the patent in suit." Appellant Bausch & Lomb argues on appeal that the trial court's approach of assessing smoothness at the very high levels of magnification obtainable by a SEM exceeds the level of smoothness required in the

claims. We agree.

Because the first step in determining infringement is claim construction, improper claim construction can distort the entire infringement analysis. *Moeller v. Lonetics, Inc.*, 229 USPQ 992, 994, No. 85-2646, slip op. at 7 (Fed. Cir. June 4, 1985). Such a distortion occurred below.

Disputed issues such as the meaning of the term "smooth," should be construed by resort to extrinsic evidence such as the specification, other claims, and the prosecution history. Here, resort to the specification clearly demonstrates that "smooth" meant that "the edges of the craters neither inflame nor irritate the eyelid of the lens wearer * * *. The markings provided on the lens surface in accordance with this invention * * * are not perceived by the lens wearer * * *." The prosecution history supports this construction. A reading of the amendment and its accompanying remarks demonstrates that smooth means the absence of a ridge that "would scratch either the eye or eyelid and would lead to infection." There is no indication that smooth means absolutely ridge-free. (This review of the prosecution history also leads us to disagree with Barnes-Hind's final argument that the prosecution history estops Bausch & Lomb from asserting infringement against the allegedly ridged HYDROCURVE lens.) Testimony from Dr. Mandell, Bausch & Lomb's expert in the field of contact lenses, indicates that to a person of ordinary skill in the art, smooth would mean an absence of "roughness or significant elevation" so that a wearer "would not feel it with the [eye]lid." Further, there is testimony that a person of ordinary skill in the art would use an optical microscope, not an SEM, to gauge the relative smoothness of an etched contact lens.

[2] We hold that smooth means smooth enough to serve the inventor's purposes, *i.e.*, not to inflame or irritate the eyelid of the wearer or be perceived by him at all when in place. Accordingly, we vacate the district court's conclusion that the surface of the HYDROCURVE lenses are not smooth or unaffected, and remand for a determination of infringement based on the proper construction of and proper test for smooth.

Conclusion

We vacate the district court's determination that the '814 patent is invalid and remand for a reconsideration of validity in light of the presumption of validity and the *Graham* findings on obviousness. We further vacate the decision of noninfringement and remand for proper claim construction and infringement analysis.

VACATED AND REMANDED

- End of Case -

FULL TEXT OF CASES (USPQ2D)

All Other Cases

In re Gorman (CA FC) 18 USPQ2d 1885 In re Gorman

**U.S. Court of Appeals Federal Circuit
18 USPQ2d 1885**

**Decided May 13, 1991
No. 90-1362**

Headnotes

PATENTS

1. Patentability/Validity - Obviousness - Combining references (§ 115.0905)

Patent and Trademark Office's reliance on teachings of large number of references in rejecting patent application for obviousness does not, without more, weigh against holding of obviousness on appeal, since criterion is not number of references, but whether references are in fields which are same as or analogous to field of invention, and whether their teachings would, taken as whole, have made invention obvious to person skilled in that field.

2. Patentability/Validity - Construction of claims (§ 115.03)

Patentability/Validity - Obviousness - In general (§ 115.0901)

Claim which describes features of invention in great detail is nevertheless obvious in view of prior art, since claim that is narrowly and specifically drawn must still meet requirements of 35 USC 103, and details listed in claim are shown in references and thus do not contribute to unobviousness.

3. Patentability/Validity - Obviousness - Relevant prior art - Particular inventions (§ 115.0903.03)

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Patentability/Validity - Obviousness - Combining references (§ 115.0905)

Application claim for candy sucker on stick, molded in elastomeric mold in shape of human thumb, is obvious in view of prior art, since all elements of claim, including molded lollipop having chewing gum base plug, with elastomeric mold serving as product wrapper, and candy in shape of human thumb, are shown in prior art references in various subcombinations, used in same manner and for same purpose as in claimed invention.

Case History and Disposition:

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Appeal from the U.S. Patent and Trademark Office, Board of Patent Appeals and Interferences.

Patent application of Jeffrey B. Gorman and Marilyn Katz, serial no. 06/882,480 (composite food product). From decision of Board of Patent Appeals and Interferences upholding examiner's rejection of all claims in application, applicants appeal. Affirmed.

Attorneys:

Thomas W. Tolpin, Highland Park, Ill., for appellant.

Teddy S. Gron, associate solicitor (Fred E. McKelvey, solicitor, with him on brief), for appellee.

Judge:

Before Rich, Newman, and Rader, circuit judges.

Opinion Text**Opinion By:**

Newman, J.

Jeffrey B. Gorman and Marilyn Katz (hereinafter "Gorman") appeal the decision of the United States Patent and Trademark Office, Board of Patent Appeals and Interferences (the "Board") denying patentability to all the claims of Gorman's patent application Serial No. 06/882,480, entitled "Composite Food Product." We affirm.

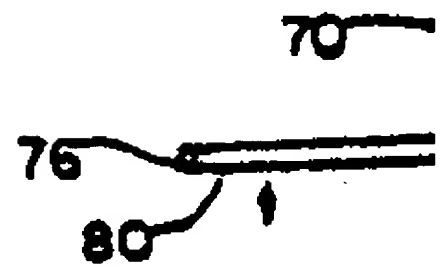
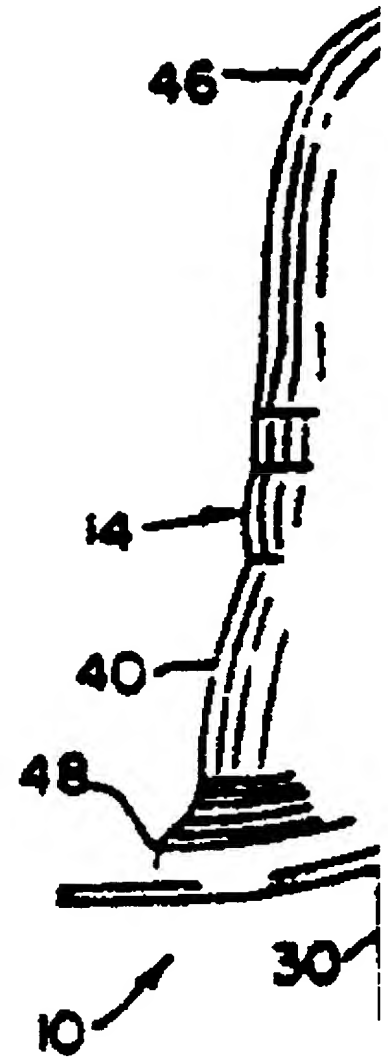
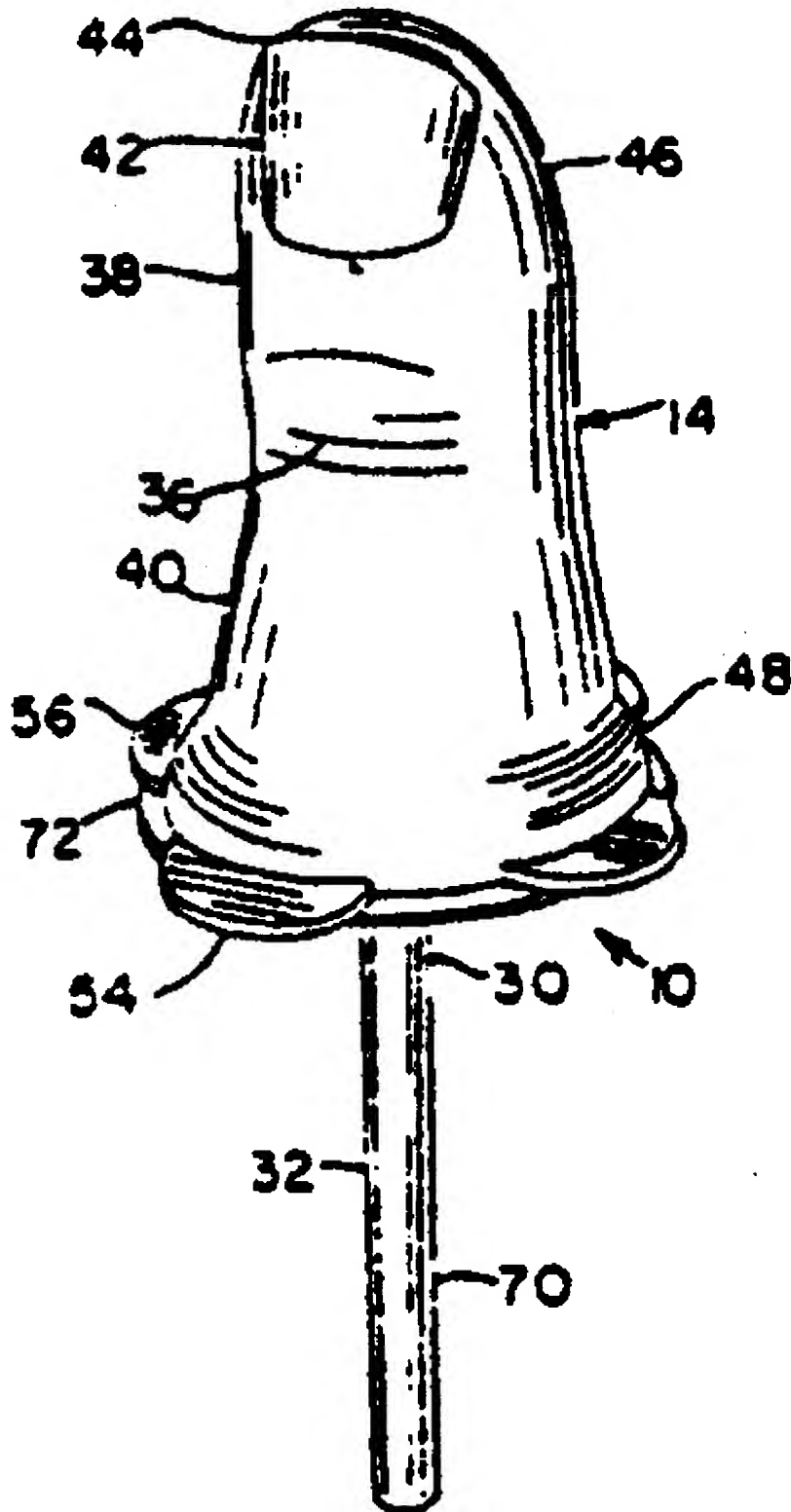
The Invention

The claimed invention is a composite candy sucker on a stick, molded in an elastomeric mold in the shape of a human thumb. During the manufacturing process liquid candy is poured into the mold, and an edible plug of bubble or chewing gum or chocolate or food-grade wax is poured into the mold after the candy has hardened, serving as a seal for the end portion of the candy. A paper or plastic disc abuts and covers the plug. The mold serves as a cover that can be removed from the candy by means of protruding flanges. The cover is described as a "toy and novelty item".

Figure 1 shows the invention in the form in which it is marketed. Figure 2 shows the cover partially removed to reveal the candy portion (12) and the chewable or edible plug (58):

FIG. 1

1



The claims describe the product in detail, as is apparent from claim 16, the claim pressed by Gorman in this appeal:

16. A composite food product, comprising:
a candy core, said candy core being in a generally liquified form when formulated,

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heated, blended and poured into a mold and in a substantially thumb-shaped hardened form when cooled and removed from said mold;

said thumb-shaped hardened form comprising said candy core positioned along a vertical axis and comprising a rigid joint-shaped portion, a rigid upper portion extending upwardly from said rigid joint-shaped portion along said vertical axis, and a rigid lower portion extending downwardly from said rigid joint-shaped portion along said vertical axis, said upper portion having a rigid finger nail-shaped portion with an upper rigid tip providing a rigid top end of said thumb-shaped hardened form and a rigid convex back extending rearwardly and downwardly from said rigid tip, and said rigid lower portion having a rigid bottom end and defining a recessed opening comprising a handle-receiving socket about said vertical axis;

a removable resilient shell comprising a substantially thumb-shaped, elastomeric material selected from the group consisting of rubber and flexible plastic, said shell providing
a mold for receiving and molding said liquified candy form,
a removable outer protective cover positioned about and covering said hardened form comprising said candy core, and

a toy and novelty item for placement upon the thumb of the user when removed from said hardened form comprising said candy core;

said thumb-shaped elastomeric material comprising said removable resilient shell comprising a flexible joint-shaped portion, a flexible upper portion extending upwardly from said flexible joint-shaped portion along said vertical axis, and a flexible lower portion extending downwardly from said flexible joint-shaped portion along said vertical axis, said upper portion having a flexible finger nail-shaped portion with an upper flexible tip providing a flexible top end of said shell and a flexible convex back extending rearwardly and downwardly from said flexible tip, and said flexible lower portion having an enlarged open ended diverging base, said base having a larger circumference and transverse cross-sectional area than other portions of said shell and providing the bottom of said shell, said open ended base defining a plug-receiving chamber and an access opening for entrance of said liquified form and discharge of said hardened candy form, and a set of substantially symmetrical arcuate lobes extending radially outwardly from said base, said lobes being circumferentially spaced from each other and providing manually grippable flange portions to facilitate manual removal of said shell from said core;

a plug positioned in said plug-receiving chamber adjacent said bottom of said shell, said plug abutting against the bottom of said core and providing a cap for substantially plugging and sealing the open end of said mold and cover to help enclose said candy core, and said plug comprising a food grade material selected from the group consisting of bubble gum, chewing gum, chocolate, and food grade wax;

a handle having a connecting portion connected to said plug and said candy core and positioned in said plug-receiving opening and having a manually grippable handle portion extending downward from said connecting portion along said vertical axis; and

a substantially planar annular disk for abuttingly engaging and removably seating against said base and said lobes adjacent said plug, said disk defining a central axial hole for slidably receiving said handle portion and having an outer edge with a maximum span larger than said access opening but less than the maximum diameter of said symmetrical set of lobes to substantially minimize the interference with manually gripping of said manual grippable flange portions of said lobes, said disk being of a material selected from the group consisting of paper, paperboard, and plastic, and providing a removable closure member and seal for substantially closing said access

opening and sealing said plug and said candy core within said shell.

The claims were rejected in view of thirteen references. The primary references, patents to Siciliano, Copeman, and Pooler, show ice cream or candy molded in a plastic, rubber or elastomeric mold. In Siciliano and Copeman the mold also serves as the product wrapper. In Siciliano the ice cream is poured into the mold, a stick is inserted, the ice cream is hardened, and a cardboard cover seals the area between the stick and the elastomeric wrapper. Copeman and Kuhlke show candy lollipops molded in elastomeric molds. Copeman states that the mold may take "varying shapes, such as in the form of fruit, or animals" and Kuhlke discusses the desirability of sealing candy from the outside air. In Siciliano, Copeman and Kuhlke, the mold is peeled from the confection prior to use. The two Nolte patents teach that gripping flanges may be placed on an ice cream wrap

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per to facilitate removal. Ahern and Knaust each show a disc-shaped seal or cover for a frozen confection. Ahern shows the cover in conjunction with ice cream on a stick.

Harris shows a hollow thumb-shaped lollipop into which the thumb is inserted, and Craddock shows a thumb-shaped confection supported on a disc-shaped handle; in both cases without the other elements shown by Gorman. Fulkerson shows a candy coating surrounding a block of ice cream, and a candy plug for retaining liquid syrup inside a cavity in the ice cream. Webster shows chewing gum entirely enclosing a liquid syrup product. Spiegel shows a chocolate layer having an alcohol diffusion barrier to plug the end of a plastic container of liqueur. Fulkerson, Webster and Spiegel all suggest the greater appeal to consumers of providing two different components in the same confection.

The Board found that all of the features of Gorman's product were known to the art, and that various combinations of these elements existed in known similar structures. The Board concluded that the applicant's claimed combination was suggested by and would have been obvious in light of the references.

Discussion

A

Each element of the Gorman claims is in the prior art, separately or in sub-combination. Gorman argues that when it is necessary to combine the teachings of a large number of references in order to support a rejection for obviousness under 35 U.S.C. §103, this of itself weighs against a holding of obviousness.

[1] The criterion, however, is not the number of references, but what they would have meant to a person of ordinary skill in the field of the invention. In *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1383, 231 USPQ 81, 93 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987), the court held that a combination of about twenty references that "skirt[ed] all around" the claimed invention did not show obviousness. In other instances, on other facts, we have upheld reliance on a large number of references to show obviousness. Compare *In re Miller*, 159 F.2d 756, 758-58, 72 USPQ 512, 514-15 (CCPA 1947) (rejecting argument that the need for eight references for rejection supported patentability) with *Kansas Jack, Inc. v. Kuhn*, 719 F.2d 1144, 1149, 219 USPQ 857, 860 (Fed. Cir. 1983) (where teachings relied upon to show obviousness were repeated in a number of references, the conclusion of obviousness was strengthened). *See also, e.g., In re Troiel*, 274 F.2d 944, 947, 124 USPQ 502, 504 (CCPA 1960) (rejecting appellant's argument that combining a large number of references to show obviousness was "farfetched and illogical").

Determination of whether a new combination of known elements would have been obvious to one of ordinary skill depends on various facts, including whether the elements exist in "analogous art", that is, art that is reasonably pertinent to the problem with which the inventor is concerned. *In re Deminski*, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986). When the references are all in the same or analogous fields, knowledge thereof by the hypothetical person of ordinary skill is presumed, *In re Sernaker*, 702 F.2d 989, 994, 217 USPQ 1, 5 (Fed. Cir.

1983), and the test is whether the teachings of the prior art, taken as a whole, would have made obvious the claimed invention. *See In re Young*, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991).

When it is necessary to select elements of various teachings in order to form the claimed invention, we ascertain whether there is any suggestion or motivation in the prior art to make the selection made by the applicant.

Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985). "Obviousness can not be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination." *In re Bond*, 910 F.2d 831, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990) (quoting *Carella v. Starlight Archery and Pro Line Co.*, 804 F.2d 135, 140, 231 USPQ 644, 647 (Fed. Cir. 1986)).

The extent to which such suggestion must be explicit in, or may be fairly inferred from, the references, is decided on the facts of each case, in light of the prior art and its relationship to the applicant's invention. As in all determinations under 35 U.S.C. §103, the decisionmaker must bring judgment to bear. It is impermissible, however, simply to engage in a hindsight reconstruction of the claimed invention, using the applicant's structure as a template and selecting elements from references to fill the gaps. *Interconnect Planning*, 774 F.2d at 1143, 227 USPQ at 551. The references themselves must provide some teaching whereby the applicant's combination would have been obvious.

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B

Gorman argues that the references showing ice cream in a mold or wrapper on a stick and the references showing candy in a mold or wrapper on a stick are not analogous, for they require different conditions of production. However, the Copeman reference shows the close relationship of these arts, stating that his elastomeric mold may be used for "frozen confections and other solid confections". We conclude that the ice cream on a stick and candy on a stick arts are analogous, and that the Siciliano, Copeman, Pooler, and Kuhlke references show or suggest Gorman's candy on a stick and covered with an elastomeric mold, for which the thumb-shape is shown by Harris or Craddock.

The suggestion of providing a layer of chewing gum, chocolate or the like, surrounding the candy core in the area not covered by the mold, to seal the candy and provide a second food product, is provided by Fulkerson, Webster, or Spiegel. The paper disc adjacent the base of the candy structure is shown in Ahern and Knaust. Harris and Craddock both show thumb-shaped candy. Gorman argues that the prior art does not suggest using the thumb-shaped cover as a toy after the candy is removed. However, Copeman states that his rubber mold may be used as a "toy balloon" after the candy is removed. Gorman argues that Craddock teaches away from the claimed invention because of Craddock's admonition that lollipops on sticks are dangerous to children. However, candy on a stick is too well known for this caution to contribute to unobviousness.

[2] Claim 16 recites details such as a "joint-shaped portion", a "finger nail portion", an "upper portion", a "lower portion" and a "convex back", as descriptive of the thumb shape. Such details are shown in the references and do not contribute to unobviousness. A claim that is narrowly and specifically drawn must nevertheless meet the requirements of §103:

The mere fact that a claim recites in detail all of the features of an invention (i.e., is a "picture claim") is never, in itself, justification for the allowance of such a claim.

Manual of Patent Examining Procedure, §706 (Rev. 6, Oct. 1987) at p. 700-6; *In re Romito*, 289 F.2d 518, 129 USPQ 359 (CCPA 1961) (rejecting a "picture claim").

[3] Applying the principles of *Graham v. John Deere & Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), we discern all of the elements of claim 16, used in substantially the same manner, in devices in the same field of

endeavor. The various elements Gorman combined: the molded lollipop with a chewing gum plug, with the mold serving as the product wrapper; and candy in the shape of a thumb; are all shown in the cited references in various sub-combinations, used in the same way, for the same purpose as in the claimed invention. The Board did not, as Gorman argues, pick and choose among isolated and inapplicable disclosures in the prior art. Rather, the claim elements appear in the prior art in the same configurations, serving the same functions, to achieve the results suggested in prior art. *In re Sernaker*, 702 F.2d at 994, 217 USPQ at 5. The large number of cited references does not negate the obviousness of the combination, for the prior art uses the various elements for the same purposes as they are used by appellants, making the claimed invention as a whole obvious in terms of 35 U.S.C. §103. The Board's decision is *AFFIRMED*.

- End of Case -

FULL TEXT OF CASES (USPQ2D)

All Other Cases

In re Dow Chemical Co. (CA FC) 5 USPQ2d 1529 In re Dow Chemical

Co.

U.S. Court of Appeals Federal Circuit
5 USPQ2d 1529

Decided January 25, 1988

No. 87-1406

Headnotes**PATENTS****1. Patentability/validity -- Obviousness -- Evidence of (§ 115.0903)****Patentability/validity -- Obviousness -- Secondary considerations (§ 115.0907)**

Board of Patent Appeals and Interferences erred in rejecting as obvious claims for invention of impact resistant rubber-based resin suitable for molding and extrusion containing preferred ingredients styrene, maleic anhydride, and synthetic diene rubbers, since none of prior art references cited by patent holder and PTO suggest that any process could be used successfully in such three-component system to produce resin having desired properties, and since board did not give fair evidentiary weight to expert's skepticism concerning invention, or to five to six years necessary to produce invention, in determining obviousness issue.

Particular Patents -- Chemical -- Rubber Based Resins

3,919,354, Moore, Lehrer, Lyons and McKeever, impact resistant polymers of a resinous copolymer of an alkenyl aromatic monomer and unsaturated dicarboxylic anhydride, holding of obviousness reversed.

Case History and Disposition:

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Appeal from the U.S. Patent and Trademark Office Board of Patent Appeals and Interferences.

Reexamination of Patent No. 3,919,354, held by The Dow Chemical Company. From decisions rejecting all claims of patent as obvious, patent holder appeals. Reversed.

Attorneys:

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John H. Raubitschek, associate solicitor, Arlington, Va. (Joseph F. Nakamura, solicitor, and Fred E. McKelvey, deputy solicitor, with him on the brief) for appellee.

Judge:

Before Smith, Nies, and Newman, Circuit Judges.

Opinion Text**Opinion By:**

Newman, Circuit Judge.

Dow Chemical Company appeals the decisions of the United States Patent and Trademark Office Board of Patent Appeals and Interferences, No. 86-3426 (Feb. 25, 1987) and No. 662-81 (Mar. 25, 1986), together rejecting all the claims on reexamination of United States Patent No. 3,919,354 entitled "Impact Resistant Polymers of a Resinous Copolymer of an Alkenyl Aromatic Monomer and an Unsaturated Dicarboxylic Anhydride.". We reverse.

The Rejection

The invention is an impact resistant rubber-based resin having improved resistance to heat distortion. Claim 28, the broadest claim on appeal, is illustrative:

28. A polymer suitable for molding and extrusion, of substantially improved resistance to mechanical shock and impact, the polymer consisting essentially of the polymerization product of

a. a monovinyl alkenyl aromatic monomer containing up to 12 carbon atoms and having the alkenyl group attached directly to the benzene nucleus, the al

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kenyl aromatic compound being present in a proportion of from about 65 to 95 parts by weight and from 35 to 5 parts by weight of an unsaturated dicarboxylic acid anhydride readily copolymerizable therewith, and

b. from 5 to 35 parts by weight of a diene rubber per 100 parts of (a) plus (b), the rubber consisting essentially of 65 to 100 weight percent butadiene, or isoprene and up to 35 weight percent of an alkenyl aromatic hydrocarbon as the sole other monomer in the rubber, the rubber having a glass temperature not higher than 0° C., the rubber being in the form of a plurality of particles having diameters within the range of 0.02 to 30 microns dispersed throughout a matrix of polymer of alkenyl aromatic monomer and the anhydride, at least a major portion of the rubber particles containing distinct occlusions of the polymer of (a), with the further limitation that the polymer of (a) is a nonequimolar random copolymer.

The preferred ingredients are styrene, maleic anhydride, and synthetic diene rubbers, and our discussion will be in these terms, as was the Board's.

The Board's decision that the claimed invention would have been obvious in terms of 35 U.S.C. §103 was based on the combination of two references: a 1966 article by Molau and Keskkula entitled "Heterogeneous Polymer Systems IV. Mechanism of Rubber Particle Formation in Rubber-Modified Vinyl Polymers", and Baer U.S. Patent No. 2,971,939. Also discussed were Farmer U.S. Patent No. 2,275,951 and a publication by Bacon and Farmer entitled "The Interaction of Maleic Anhydride with Rubber", although the Board stated that the rejection was sustainable without relying on either of these references.

The Prior Art

The Molau/Keskkula article shows the preparation of a resin having high impact strength by dissolving synthetic diene rubber in styrene and polymerizing the styrene. This reference teaches that phase inversion is necessary to the formation of these moldable, extrudable resins. Baer prepares nonequimolar random maleic anhydride-styrene copolymers by a technique whose salient feature is adding the maleic anhydride slowly to polymerizing styrene under controlled conditions.

Farmer shows the reaction among natural rubber, styrene, and maleic anhydride, and also states that maleic anhydride reacts directly with the rubber. The Bacon and Farmer article also shows the reaction of maleic anhydride with natural rubber. These products, according to Dow's evidence and as found by the Board, do not have a dispersed rubber phase containing occlusions, and are not moldable.

Dow argues that the Board has engaged in hindsight reconstruction of the claimed invention. To support its position Dow refers to several scientific publications and other references, in addition to those cited by the PTO, and evidence submitted by declaration and deposition.

The first group of references to which Dow refers shows the reaction of maleic anhydride with natural or synthetic rubbers. These references show both intermolecular and intramolecular reactions between maleic anhydride and the various rubbers, but not a grafted rubber, which is said by Dow to characterize its product. Additional references are cited by Dow to show that maleic anhydride is much more reactive with diene-type synthetic rubbers than with natural rubber, and that the reaction with the synthetic rubbers is difficult to control and the product is unpredictable.

Another reference cited by Dow, the *Encyclopedia of Science and Technology*, states the general rule, derived from experience with acrylonitrile, that copolymers with synthetic diene rubbers have elevated glass transition temperatures; Dow advises that this is a highly undesirable property for a high-impact strength resin.

Another series of references cited by Dow shows several known techniques of reacting styrene and maleic anhydride to prepare nonequimolar copolymers, all different from the technique shown in the Baer patent.

Analysis

The Board held that the claimed product results from the application of the Baer technique to a styrene-maleic anhydride polymer system which includes synthetic diene rubber, and that it would have been obvious to do that which these inventors did if one wanted to increase the heat stability of a known high impact styrene rubber resin. The crux of Dow's argument is that no reference shows or suggests that these references should or could be combined successfully. Indeed, the Board agreed, stating that "[i]t is not apparent from the evidence whether

rubber and maleic anhydride would have been expected to react *in the process suggested by the combined disclosure of Molau and Baer . . .*" (Emphasis in original).

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Dow also points out, referring to the Keskkula evidence, that it was believed that these products could not be made by the mass polymerization techniques of the prior art. Dow asserts that no reference, including Baer, suggested that the Baer technique could produce the requisite phase inversion in a system containing diene rubber, and could produce a diene-rubber containing resin that could be molded and had the other desired high-impact and thermal properties.

Dow refers to the Farmer patent, cited by the examiner and the Board, which shows that the reaction of styrene, maleic anhydride, and natural rubber forms a product that is unsuitable as a molding resin. Dow argues that Farmer leads away from the Dow invention, in that Farmer obtains precisely the "runaway" reaction, and undesirable product, that Keskkula believed was characteristic of reactions involving styrene, maleic anhydride, and rubbers. Dow points to Dr. Keskkula's Report to Dow management, written in 1966 at about the time the present invention was made, pointing out the many problems in attempting to produce the three-component product that these inventors later succeeded in producing.

In response, the Commissioner argues that even though an expert polymer scientist, Dr. Keskkula, "personally may have been surprised by the invention at the time it was made, it does not necessarily follow that the invention would have been unobvious to one of ordinary skill in the art." The Commissioner suggests that one less encumbered by knowledge of the need for phase inversion, as described in the Molau/Keskkula article, might have achieved the Dow product by combining the references in the way suggested by the Commissioner. Reflecting on this theory of invention, we observe that such a person did not do so, despite the decades of experimentation with these components, and the recognition of need, as evidenced by the many references cited by both sides. *See In re Geiger*, 815 F.2d 686, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

The Board held that Dow's statement in the patent specification that it was known that styrene/maleic anhydride copolymers had improved heat resistance as compared with styrene rubbers, made it *prima facie* obvious to combine these three components. Indeed, the record shows that such combinations had previously been made, in various ways, but without producing the product here desired. That there were other attempts, and various combinations and procedures tried in the past, does not render obvious the later successful one. The PTO's reliance on Dow's "admission" of longfelt need as *prima facie* evidence of obviousness is contrary to logic as well as law. Recognition of need, and difficulties encountered by those skilled in the field, are classical indicia of unobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966); *Custom Accessories v. Jeffrey-Allan Industries*, 807 F.2d 955, 960, 1 USPQ2d 1196, 1199 (Fed. Cir. 1986). Further, a patent applicant's statement of the purpose of the work is not prior art.

The Board thus concluded that although one would not know in advance whether the Baer technique would work at all in the presence of diene rubber, or produce a moldable high-impact product, if it did succeed it would have been obvious. The Board criticized Keskkula's evidence for not stating whether, after these inventors proposed the procedure here at issue, Keskkula would have expected the maleic anhydride to react preferentially with the diene rubber or with the styrene and to what effect on the impact properties of the product. The PTO argues that unless the prior art is shown to have led one of ordinary skill to expect the Baer technique to fail, the applicant's burden is not met. This is not the criterion. That these inventors eventually succeeded when they and others had failed does not mean that they or their colleagues must have expected each new idea to fail. Most technological advance is the fruit of methodical, persistent investigation, as is recognized in 35 U.S.C. §103 ("Patentability shall not be negated by the manner in which the invention was made").

The consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. See *Burlington Industries v. Quigg*, 822 F.2d 1581, 1583, 3 USPQ2d 1436, 1438 (Fed. Cir. 1987); *In re Hedges*, 783 F.2d 1038, 1041, 228 USPQ 685, 687 (Fed. Cir. 1987); *Orthopedic Equipment Co. v. United States*, 702 F.2d 1005, 1013, 217 USPQ 193, 200 (Fed. Cir. 1983); *In re Rinehart*, 531 F.2d 1048, 1053-54, 189 USPQ 143, 148 (CCPA 1976). Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure.

In determining whether such a suggestion can fairly be gleaned from the prior art, the full field of the invention must be considered; for the person of ordinary skill is charged

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with knowledge of the entire body of technological literature, including that which might lead away from the claimed invention. The Commissioner argues that since the PTO is no longer relying on Farmer or the Bacon and Farmer article, the applicant is creating a "straw man". It is indeed pertinent that these references teach against the present invention. Evidence that supports, rather than negates, patentability must be fairly considered.

[1] The PTO presents, in essence, an "obvious to experiment" standard for obviousness. However, selective hindsight is no more applicable to the design of experiments than it is to the combination of prior art teachings. There must be a reason or suggestion in the art for selecting the procedure used, other than the knowledge learned from the applicant's disclosure. *Interconnect Planning Corporation v. Feil*, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985). Of the many scientific publications cited by both Dow and the PTO, none suggests that any process could be used successfully in this three-component system, to produce this product having the desired properties. The skepticism of an expert, expressed before these inventors proved him wrong, is entitled to fair evidentiary weight, see *In re Piasecki*, 745 F.2d 1468, 1475, 223 USPQ 785, 790 (Fed. Cir. 1984); *In re Zeidler*, 682 F.2d 961, 966, 215 USPQ 490, 494 (CCPA 1982), as are the five to six years of research that preceded the claimed invention. The evidence as a whole does not support the PTO's conclusion that the claimed invention would have been obvious in terms of 35 U.S.C. §103.

REVERSED

- End of Case -

As noted in *Brouwer*, 77 F.3d at 425, 37 USPQ2d at 1666, the inquiry as to whether a claimed invention would have been obvious is "highly fact-specific by design". Accordingly, obviousness must be assessed on a case-by-case basis. The following decisions are illustrative of the lack of *per se* rules in applying the test for obviousness under 35 U.S.C. 103 and of the fact-intensive comparison of claimed processes with the prior art: *In re Durden*, 763 F.2d 1406, 226 USPQ 359 (Fed. Cir. 1985) (The examiner rejected a claim directed to a process in which patentable starting materials were reacted to form patentable end products. The prior art showed the same chemical reaction mechanism applied to other chemicals. The court held that the process claim was obvious over the prior art.); *In re Albertson*, 332 F.2d 379, 141 USPQ 730 (CCPA 1964) (Process of chemically reducing one novel, nonobvious material to obtain another novel, nonobvious material was claimed. The process was held obvious because the reduction reaction was old.); *In re Kanter*, 399 F.2d 249, 158 USPQ 331 (CCPA 1968) (Process of siliconizing a patentable base material to obtain a patentable product was claimed. Rejection based on prior art teaching the siliconizing process as applied to a different base material was upheld.); Cf. *In re Pleuddemann*, 910 F.2d 823, 15 USPQ2d 1738 (Fed. Cir. 1990) (Methods of bonding polymer and filler using a novel silane coupling agent held patentable even though methods of bonding using other silane coupling agents were well known because the process could not be conducted without the new agent); *In re Kuehl*, 475 F.2d 658, 177 USPQ 250 (CCPA 1973) (Process of cracking hydrocarbons using novel zeolite catalyst found to be patentable even though catalytic cracking process was old. "The test under 103 is whether in view of the prior art the invention as a whole would have been obvious at the time it was made, and the prior art here does not include the zeolite, ZK-22. The obviousness of the process of cracking hydrocarbons with ZK-22 as a catalyst must be determined without reference to knowledge of ZK-22 and its properties." 475 F.2d at 664-665, 177 USPQ at 255.); and *In re Mancy*, 499 F.2d 1289, 182 USPQ 303 (CCPA 1974) (Claim to a process for the production of a known antibiotic by cultivating a novel, unobvious microorganism was found to be patentable.).

2121 Prior Art; General Level of Operability Required to Make a *Prima Facie* Case

PRIOR ART IS PRESUMED TO BE OPERABLE/ ENABLING

When the reference relied on expressly anticipates or makes obvious all of the elements of the claimed invention, the reference is presumed to be operable. Once such a reference is found, the burden is on applicant to provide facts rebutting the presumption of operability. *In re Sasse*, 629 F.2d 675, 207 USPQ 107 (CCPA 1980). See also MPEP § 716.07.

WHAT CONSTITUTES AN "ENABLING DISCLOSURE" DOES NOT DEPEND ON THE TYPE OF PRIOR ART THE DISCLOSURE IS CONTAINED IN

The level of disclosure required within a reference to make it an "enabling disclosure" is the same no matter what type of prior art is at issue. It does not matter whether the prior art reference is a U.S. patent, foreign patent, a printed publication or other. There is no basis in the statute (35 U.S.C. 102 or 103) for discriminating either in favor of or against prior art references on the basis of nationality. *In re Moreton*, 288 F.2d 708, 129 USPQ 227 (CCPA 1961).

2121.01 Use of Prior Art in Rejections Where Operability Is in Question

"In determining that quantum of prior art disclosure which is necessary to declare an applicant's invention 'not novel' or 'anticipated' within section 102, the stated test is whether a reference contains an 'enabling disclosure'..." *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968). A reference contains an "enabling disclosure" if the public was in possession of the claimed invention before the date of invention. "Such possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his [or her] own knowledge to make the claimed invention." *In re Donohue*, 766 F.2d 531, 226 USPQ 619 (Fed. Cir. 1985).

I. 35 U.S.C. 102 REJECTIONS AND ADDITION OF EVIDENCE SHOWING REFERENCE IS OPERABLE

It is possible to make a 35 U.S.C. 102 rejection even if the reference does not itself teach one of ordinary skill how to practice the invention, i.e., how to make or use the article disclosed. If the reference teaches every claimed element of the article, secondary evidence, such as other patents or publications, can be cited to show public possession of the method of making and/or using. *In re Donohue*, 766 F.2d at 533, 226 USPQ at 621. See MPEP § 2131.01 for more information on 35 U.S.C. 102 rejections using secondary references to show that the primary reference contains an "enabling disclosure."

II. 35 U.S.C. 103 REJECTIONS AND USE OF INOPERATIVE PRIOR ART

"Even if a reference discloses an inoperative device, it is prior art for all that it teaches." *Beckman Instruments v. LKB Produkter AB*, 892 F.2d 1547, 1551, 13 USPQ2d 1301, 1304 (Fed. Cir. 1989). Therefore, "a non-enabling reference may qualify as prior art for the purpose of determining obviousness under 35 U.S.C. 103." *Symbol Techs. Inc. v. Opticon Inc.*, 935 F.2d 1569, 1578, 19 USPQ2d 1241, 1247 (Fed. Cir. 1991).

2121.02 Compounds and Compositions — What Constitutes Enabling Prior Art

ONE OF ORDINARY SKILL IN THE ART MUST BE ABLE TO MAKE OR SYNTHESIZE

Where a process for making the compound is not developed until after the date of invention, the mere naming of a compound in a reference, without more, cannot constitute a description of the compound. *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968). Note, however, that a reference is presumed operable until applicant provides facts rebutting the presumption of operability. *In re Sasse*, 629 F.2d 675, 207 USPQ 107 (CCPA 1980). Therefore, applicant must provide evidence showing that a process for making was not known at the time of the invention. See the following paragraph for the evidentiary standard to be applied.

A REFERENCE DOES NOT CONTAIN AN "ENABLING DISCLOSURE" IF ATTEMPTS AT MAKING THE COMPOUND OR COMPOSITION WERE UNSUCCESSFUL BEFORE THE DATE OF INVENTION

When a prior art reference merely discloses the structure of the claimed compound, evidence showing that attempts to prepare that compound were unsuccessful before the date of invention will be adequate to show inoperability. *In re Wiggins*, 488 F.2d 538, 179 USPQ 421 (CCPA 1971). However, the fact that an author of a publication did not attempt to make the compound disclosed, without more, will not overcome a rejection based on that publication. *In re Donohue*, 766 F.2d 531, 226 USPQ 619 (Fed. Cir. 1985) (In this case, the examiner had made a rejection under 35 U.S.C. 102(b) over a publication, which disclosed the claimed compound, in combination with two patents teaching a general process of making the particular class of compounds. The applicant submitted an affidavit stating that the authors of the publication had not actually synthesized the compound. The court held that the fact that the publication's author did not synthesize the disclosed compound was immaterial to the question of reference operability. The patents were evidence that synthesis methods were well known. The court distinguished *Wiggins*, in which a very similar rejection was reversed. In *Wiggins*, attempts to make the compounds using the prior art methods were all unsuccessful.). Compare *In re Hoeksema*, 399 F.2d 269, 158 USPQ 596 (CCPA 1968) (A claim to a compound was rejected over a patent to *De Boer* which disclosed compounds similar in structure to those claimed (obvious homologs) and a process of making these compounds. Applicant responded with an affidavit by an expert named Wiley which stated that there was no indication in the *De Boer* patent that the process disclosed in *De Boer* could be used to produce the claimed compound and that he did not believe that the process disclosed in *De Boer* could be adapted to the production of the claimed compound. The court held that the facts stated in this affidavit were legally sufficient to overcome the rejection and that applicant need not show that all known processes are incapable of producing the claimed compound for this showing would be practically impossible.).

A JOURNAL ARTICLE OR OTHER PUBLICATION BECOMES AVAILABLE AS PRIOR ART ON DATE OF IT IS RECEIVED BY A MEMBER OF THE PUBLIC

A publication disseminated by mail is not prior art until it is received by at least one member of the public. Thus, a magazine or technical journal is effective as of its date of publication (date when first person receives it) not the date it was mailed or sent to the publisher. *In re Schlittler*, 234 F.2d 882, 110 USPQ 304 (CCPA 1956).

2129 Admissions as Prior Art [R-1]

ADMISSIONS BY APPLICANT CONSTITUTE PRIOR ART

When applicant states that something is prior art, it is taken as being available as prior art against the claims. Admitted prior art can be used in obviousness rejections. *In re Nomiya*, 509 F.2d 566, 184 USPQ 607, *611 (CCPA 1975) (Figures in the application labeled "prior art" held to be an admission that what was pictured was prior art relative to applicant's invention.).

A JEPSON CLAIM RESULTS IN AN IMPLIED ADMISSION THAT PREAMBLE IS PRIOR ART

The preamble elements in a Jepson-type claim (i.e., a claim of the type discussed in 37 CFR 1.75(e); see MPEP § 608.01(m)) "are impliedly admitted to be old in the art, ... but it is only an implied admission." *In re Ehrreich*, 590 F.2d 902, 909-910 200 USPQ 504, 510 (CCPA 1979) (emphasis in original) (citations omitted). See also *Sjolund v. Musland*, 847 F.2d 1573, 1577, 6 USPQ2d 2020, 2023 (Fed. Cir. 1988); *Pentec, Inc. v. Graphic Controls Corp.*, 776 F.2d 309, 315, 227 USPQ 766, 770 (Fed. Cir. 1985); and *Reading & Bates Construction Co. v. Baker Energy Resources Corp.*, 748 F.2d 645, 650, 223 USPQ 1168, 1172 (Fed. Cir. 1984). Claims must be read in light of the specification. Where the specification confirms that the subject matter of the preamble was invented by another before applicant's invention, the preamble is treated as prior art. However, certain art may be prior art to one inventive entity, but not to the public in general. *In re Fout*, 675 F.2d 297, 300-301, 213 USPQ 532, 535-36 (CCPA 1982). This is the case when applicant has made an improvement on his or her own prior

invention. An applicant's own foundational work should not, unless there is a statutory bar, be treated as prior art solely because knowledge of this work is admitted. Therefore, when applicant explains that the *Jepson* format is being used to avoid a double patenting rejection over the applicant's own copending application, the implication that the preamble is admitted prior art is overcome. *Reading & Bates Construction Co. v. Baker Energy Resources Corp.*, 748 F.2d 645, 650, 223 USPQ 1168, 1172 (Fed. Cir. 1984). Compare *In re Fout*, 675 F.2d 297, 300-01, 213 USPQ 532, 535-36 (CCPA 1982) (The court held that the preamble was admitted prior art because the specification explained that Paglaro, a different inventor, had invented the subject matter described in the preamble.).

2131 Anticipation — Application of 35 U.S.C. 102(a), (b), and (e) [R-1]

35 U.S.C. 102. Conditions for patentability; novelty and loss of right to patent.

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States, or

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(e) the invention was described in — (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language; or<

(f) he did not himself invent the subject matter sought to be patented, or

(g)(1)during the course of an interference conducted under section 135 or section 291, another inventor involved therein

establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or (2) before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). >"When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art." *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001) (claim to a system for setting a computer clock to an offset time to address the Year 2000 (Y2K) problem, applicable to records with year date data in "at least one of two-digit, three-digit, or four-digit" representations, was held anticipated by a system that offsets year dates in only two-digit formats). See also MPEP § 2131.02.< "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990). Note that, in some circumstances, it is permissible to use multiple references in a 35 U.S.C. 102 rejection. See MPEP § 2131.01.

2131.01 Multiple Reference 35 U.S.C. 102 Rejections

Normally, only one reference should be used in making a rejection under 35 U.S.C. 102. However, a 35 U.S.C. 102 rejection over multiple references has

been held to be proper when the extra references are cited to:

(A) Prove the primary reference contains an "enabled disclosure;"

(B) Explain the meaning of a term used in the primary reference; or

(C) Show that a characteristic not disclosed in the reference is inherent.

See paragraphs I-III below for more explanation of each circumstance.

I. TO PROVE REFERENCE CONTAINS AN "ENABLED DISCLOSURE"

Extra References and Extrinsic Evidence Can Be Used To Show the Primary Reference Contains an "Enabled Disclosure"

When the claimed composition or machine is disclosed identically by the reference, an additional reference may be relied on to show that the primary reference has an "enabled disclosure." *In re Samour*, 571 F.2d 559, 197 USPQ 1 (CCPA 1978) and *In re Donohue*, 766 F.2d 531, 226 USPQ 619 (Fed. Cir. 1985) (Compound claims were rejected under 35 U.S.C. 102(b) over a publication in view of two patents. The publication disclosed the claimed compound structure while the patents taught methods of making compounds of that general class. The applicant argued that there was no motivation to combine the references because no utility was previously known for the compound and that the 35 U.S.C. 102 rejection over multiple references was improper. The court held that the publication taught all the elements of the claim and thus motivation to combine was not required. The patents were only submitted as evidence of what was in the public's possession before applicant's invention.).

II. TO EXPLAIN THE MEANING OF A TERM USED IN THE PRIMARY REFERENCE

Extra References or Other Evidence Can Be Used to Show Meaning of a Term Used in the Primary Reference

Extrinsic evidence may be used to explain but not expand the meaning of terms and phrases used in the

END OF DILIGENCE PERIOD IS MARKED BY EITHER ACTUAL OR CONSTRUCTIVE REDUCTION TO PRACTICE

"[I]t is of no moment that the end of that period [for diligence] is fixed by a constructive, rather than an actual, reduction to practice." *Justus v. Appenzeller*, 177 USPQ 332, 340-41 (Bd. Pat. Inter. 1971).

2141 35 U.S.C. 103; the Graham Factual Inquiries

35 U.S.C. 103. Conditions for patentability; non-obvious subject matter.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

(b)(1) Notwithstanding subsection (a), and upon timely election by the applicant for patent to proceed under this subsection, a biotechnological process using or resulting in a composition of matter that is novel under section 102 and nonobvious under subsection (a) of this section shall be considered nonobvious if-

(A) claims to the process and the composition of matter are contained in either the same application for patent or in separate applications having the same effective filing date; and

(B) the composition of matter, and the process at the time it was invented, were owned by the same person or subject to an obligation of assignment to the same person.

(2) A patent issued on a process under paragraph (1)-

(A) shall also contain the claims to the composition of matter used in or made by that process, or

(B) shall, if such composition of matter is claimed in another patent, be set to expire on the same date as such other patent, notwithstanding section 154.

(3) For purposes of paragraph (1), the term "biotechnological process" means-

(A) a process of genetically altering or otherwise inducing a single- or multi-celled organism to-

(i) express an exogenous nucleotide sequence,

(ii) inhibit, eliminate, augment, or alter expression of an endogenous nucleotide sequence, or

(iii) express a specific physiological characteristic not naturally associated with said organism;

(B) cell fusion procedures yielding a cell line that expresses a specific protein, such as a monoclonal antibody; and

(C) a method of using a product produced by a process defined by subparagraph (A) or (B), or a combination of subparagraphs (A) and (B).

(c) Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and

(g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

STANDARD OF PATENTABILITY TO BE APPLIED IN OBVIOUSNESS REJECTIONS

Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case. The Supreme Court in *Graham v. John Deere*, 383 U.S. 1, 148 USPQ 459 (1966), stated:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. . .

This is not to say, however, that there will not be difficulties in applying the nonobviousness test. What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context. The difficulties, however, are comparable to those encountered daily by the courts in such frames of reference as negligence and scienter, and should be amenable to a case-by-case development. We believe that strict observance of the requirements laid down here will result in that uniformity and definitiveness which Congress called for in the 1952 Act.

Office policy is to follow *Graham v. John Deere Co.* in the consideration and determination of obviousness under 35 U.S.C. 103. As quoted above, the four factual inquiries enunciated therein as a background for determining obviousness are as follows:

(A) Determining the scope and contents of the prior art;

(B) Ascertaining the differences between the prior art and the claims in issue;

(C) Resolving the level of ordinary skill in the pertinent art; and

(D) Evaluating evidence of secondary considerations.

The Supreme Court reaffirmed and relied upon the *Graham* three pronged test in its consideration and determination of obviousness in the fact situations presented in *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 189 USPQ 449, *reh'g denied*, 426 U.S. 955 (1976) and *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 163 USPQ 673 (1969). In each case, the Court discussed whether the claimed combinations produced a "new or different function" and a "synergistic result," but it clearly decided whether the claimed inventions were nonobviousness on the basis of the three-way test in *Graham*. Nowhere in its decisions in these cases does the Court state that the "new or different function" and "synergistic result" tests supersede a finding of nonobvious or obviousness under the *Graham* test.

Accordingly, examiners should apply the test for patentability under 35 U.S.C. 103 set forth in *Graham*. See below for a detailed discussion of each of the *Graham* factual inquiries. It should be noted that the Supreme Court's application of the *Graham* test to the fact circumstances in *Ag Pro* was somewhat stringent, as it was in *Black Rock*. Note *Republic Industries, Inc. v. Schlage Lock Co.*, 592 F.2d 963, 200 USPQ 769 (7th Cir. 1979). The Court of Appeals for the Federal Circuit stated in *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1540, 218 USPQ 871, 880 (Fed. Cir. 1983) that

A requirement for "synergism" or a "synergistic effect" is nowhere found in the statute, 35 U.S.C. When present, for example in a chemical case, synergism may point toward nonobviousness, but its absence has no place in evaluating the evidence on obviousness. The more objective findings suggested in *Graham*, *supra*, are drawn from the language of the statute and are fully adequate guides for evaluating the evidence relating to compliance with 35 U.S.C. § 103. *Bowser Inc. v. United States*, 388 F.2d 346, 156 USPQ 406 (Ct. Cl. 1967).

BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS

When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;

(C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and

(D) Reasonable expectation of success is the standard with which obviousness is determined.

Hodosh v. Block Drug Co., Inc., 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

OBJECTIVE EVIDENCE MUST BE CONSIDERED

Objective evidence or secondary considerations such as unexpected results, commercial success, long-felt need, failure of others, copying by others, licensing, and skepticism of experts are relevant to the issue of obviousness and must be considered in every case in which they are present. When evidence of any of these secondary considerations is submitted, the examiner must evaluate the evidence. The weight to be accorded to the evidence depends on the individual factual circumstances of each case. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 231 USPQ 81 (Fed. Cir. 1986), *cert. denied*, 480 U.S. 947 (1987). The ultimate determination on patentability is made on the entire record. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

See MPEP § 716- § 716.06 for a discussion of objective evidence and its role in the final legal determination of whether a claimed invention would have been obvious under 35 U.S.C. 103.

2141.01 Scope and Content of the Prior Art

I. PRIOR ART AVAILABLE UNDER 35 U.S.C. 102 IS AVAILABLE UNDER 35 U.S.C. 103

"Before answering *Graham*'s 'content' inquiry, it must be known whether a patent or publication is in the prior art under 35 U.S.C. § 102." *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568, 1 USPQ2d 1593, 1597 (Fed. Cir.), *cert. denied*, 481 U.S. 1052 (1987). Subject matter that is prior art under 35 U.S.C. 102 can be used to support a rejection under section 103. *Ex parte Andresen*, 212 USPQ 100, 102 (Bd. Pat. App. & Inter. 1981) ("it appears to us that the commentator [of 35 U.S.C.A.] and the [con-

gressional] committee viewed section 103 as including all of the various bars to a patent as set forth in section 102.”).

A 35 U.S.C. 103 rejection is based on 35 U.S.C. 102(a), 102(b), 102(e), etc. depending on the type of prior art reference used and its publication or issue date. For instance, an obviousness rejection over a U.S. patent which was issued more than 1 year before the filing date of the application is said to be a statutory bar just as if it anticipated the claims under 35 U.S.C. 102(b). Analogously, an obviousness rejection based on a publication which would be applied under 102(a) if it anticipated the claims can be overcome by swearing behind the publication date of the reference by filing an affidavit or declaration under 37 CFR 1.131.

For an overview of what constitutes prior art under 35 U.S.C. 102, see MPEP § 901 - § 901.06(d) and § 2121 - § 2129.

II. SUBSTANTIVE CONTENT OF THE PRIOR ART

See MPEP § 2121 - § 2129 for case law relating to the substantive content of the prior art (e.g., availability of inoperative devices, extent to which prior art must be enabling, broad disclosure rather than preferred embodiments, admissions, etc.).

III. CONTENT OF THE PRIOR ART IS DETERMINED AT THE TIME THE INVENTION WAS MADE TO AVOID HINDSIGHT

The requirement “at the time the invention was made” is to avoid impermissible hindsight. See MPEP § 2145, paragraph X.A. for a discussion of rebutting applicants’ arguments that a rejection is based on hindsight.

“It is difficult but necessary that the decisionmaker forget what he or she has been taught . . . about the claimed invention and cast the mind back to the time the invention was made (often as here many years), to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art.” *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

IV. 35 U.S.C. 103(c) — EVIDENCE REQUIRED TO SHOW CONDITIONS OF 35 U.S.C. 103 APPLY

An applicant who wants to avail himself or herself of the benefits of 35 U.S.C. 103(c) has the burden of establishing that subject matter which qualifies as prior art under subsection (e), (f) or (g) of section 102 and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. *Ex parte Yoshino*, 227 USPQ 52 (Bd. Pat. App. & Inter. 1985). Note that for applications filed prior to November 29, 1999, 35 U.S.C. 103(c) is limited on its face to subject matter developed by another person which qualifies as prior art only under subsection (f) or (g) of section 102. See MPEP § 706.02(l)(1). See also *In re Bartfeld*, 925 F.2d 1450, 1453-54, 17 USPQ2d 1885, 1888 (Fed. Cir. 1991) (Applicant attempted to overcome a 35 U.S.C. 102(e)/103 rejection with a terminal disclaimer by alleging that the public policy intent of 35 U.S.C. 103(c) was to prohibit the use of “secret” prior art in obviousness determinations. The court rejected this argument, holding “We may not disregard the unambiguous exclusion of § 102(e) from the statute’s purview.”).

See MPEP § 706.02(l)(2) for the requirements which must be met to establish common ownership.

2141.01(a) Analogous and Nonanalogous Art

TO RELY ON A REFERENCE UNDER 35 U.S.C. 103, IT MUST BE ANALOGOUS PRIOR ART

The examiner must determine what is “analogous prior art” for the purpose of analyzing the obviousness of the subject matter at issue. “In order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.” *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992) (“A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor’s

reached on the basis of the facts gleaned from the prior art.

ESTABLISHING A *PRIMA FACIE* CASE OF OBVIOUSNESS

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria.

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See MPEP § 2144 - § 2144.09 for examples of reasoning supporting obviousness rejections.

When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper. *Ex parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986). A statement of a rejection that includes a large number of rejections must explain with reasonable specificity at least one rejection, otherwise the examiner procedurally fails to establish a *prima facie* case of obviousness. *Ex parte Blanc*, 13 USPQ2d 1383 (Bd. Pat. App. & Inter. 1989) (Rejection based on nine references which included at least 40 prior art rejections without explaining any one rejection with reasonable

specificity was reversed as procedurally failing to establish a *prima facie* case of obviousness.).

If the examiner determines there is factual support for rejecting the claimed invention under 35 U.S.C. 103, the examiner must then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not.

When an applicant submits evidence, whether in the specification as originally filed or in reply to a rejection, the examiner must reconsider the patentability of the claimed invention. The decision on patentability must be made based upon consideration of all the evidence, including the evidence submitted by the examiner and the evidence submitted by the applicant. A decision to make or maintain a rejection in the face of all the evidence must show that it was based on the totality of the evidence. Facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion of obviousness was reached, not against the conclusion itself. *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990).

See *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984) for a discussion of the proper roles of the examiner's *prima facie* case and applicant's rebuttal evidence in the final determination of obviousness. See MPEP § 706.02(j) for a discussion of the proper contents of a rejection under 35 U.S.C. 103.

2143 Basic Requirements of a *Prima Facie* Case of Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the refer-

ences themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

2143.01 Suggestion or Motivation To Modify the References [R-1]

THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).

"In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be

solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In *In re Kotzab*, the claims were drawn to an injection molding method using a single temperature sensor to control a plurality of flow control valves. The primary reference disclosed a multizone device having multiple sensors, each of which controlled an associated flow control valve, and also taught that one system may be used to control a number of valves. The court found that there was insufficient evidence to show that one system was the same as one sensor. While the control of multiple valves by a single sensor rather than by multiple sensors was a "technologically simple concept," there was no finding "as to the specific understanding or principle within the knowledge of the skilled artisan" that would have provided the motivation to use a single sensor as the system to control more than one valve. 217 F.3d at 1371, 55 USPQ2d at 1318.

In *In re Fine*, the claims were directed to a system for detecting and measuring minute quantities on nitrogen compounds comprising a gas chromatograph, a converter which converts nitrogen compounds into nitric oxide by combustion, and a nitric oxide detector. The primary reference disclosed a system for monitoring sulfur compounds comprising a chromatograph, combustion means, and a detector, and the secondary reference taught nitric oxide detectors. The examiner and Board asserted that it would have been within the skill of the art to substitute one type of detector for another in the system of the primary reference, however the court found there was no support or explanation of this conclusion and reversed.

In *In re Jones*, the claimed invention was the 2-(2-aminoethoxy) ethanol salt of dicamba, a compound with herbicidal activity. The primary reference disclosed *inter alia* the substituted ammonium salts of dicamba as herbicides, however the reference did not specifically teach the claimed salt. Secondary refer-

III. SHIFT IN CLAIMS PERMITTED

The second paragraph of 35 U.S.C. 112 does not prohibit applicants from changing what they regard as their invention during the pendency of the application. *In re Saunders*, 444 F.2d 599, 170 USPQ 213 (CCPA 1971) (Applicant was permitted to claim and submit comparative evidence with respect to claimed subject matter which originally was only the preferred embodiment within much broader claims (directed to a method).). The fact that claims in a continuation application were directed to originally disclosed subject matter which applicants had not regarded as part of their invention when the parent application was filed was held not to prevent the continuation application from receiving benefits of the filing date of the parent application under 35 U.S.C. 120. *In re Brower*, 433 F.2d 813, 167 USPQ 684 (CCPA 1970).

2172.01 Unclaimed Essential Matter [R-1]

A claim which omits matter disclosed to be essential to the invention as described in the specification or in other statements of record may be rejected under 35 U.S.C. 112, first paragraph, as not enabling. *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). See also MPEP § 2164.08(c). Such essential matter may include missing elements, steps or necessary structural cooperative relationships of elements described by the applicant(s) as necessary to practice the invention.

In addition, a claim which fails to interrelate essential elements of the invention as defined by applicant(s) in the specification may be rejected under 35 U.S.C. 112, second paragraph, for failure to point out and distinctly claim the invention. See *In re Venezia*, 530 F.2d 956, 189 USPQ 149 (CCPA 1976); *In re Collier*, 397 F.2d 1003, 158 USPQ 266 (CCPA 1968). >But see *Ex parte Nolden*, 149 USPQ 378, 380 (Bd. Pat. App. 1965) (“[I]t is not essential to a patentable combination that there be interdependency between the elements of the claimed device or that all the elements operate concurrently toward the desired result”); *Ex parte Huber*, 148 USPQ 447, 448-49 (Bd. Pat. App. 1965) (A claim does not necessarily fail to comply with 35 U.S.C. 112, second paragraph where the various elements do not function simultaneously,

are not directly functionally related, do not directly intercooperate, and/or serve independent purposes.).<

2173 Claims Must Particularly Point Out and Distinctly Claim the Invention

The primary purpose of this requirement of definiteness of claim language is to ensure that the scope of the claims is clear so the public is informed of the boundaries of what constitutes infringement of the patent. A secondary purpose is to provide a clear measure of what applicants regard as the invention so that it can be determined whether the claimed invention meets all the criteria for patentability and whether the specification meets the criteria of 35 U.S.C. 112, first paragraph with respect to the claimed invention.

2173.01 Claim Terminology

A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose so long as the terms are not used in ways that are contrary to accepted meanings in the art. Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the court in *In re Swinehart*, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.

2173.02 Clarity and Precision [R-1]

The examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112, second paragraph is whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available. When the examiner is satisfied that patentable subject matter is disclosed, and it is apparent to the examiner that the claims are directed to such patentable subject matter, he or she should allow claims which define the patentable subject matter with a reasonable degree of particularity and distinctness. Some latitude in the manner

of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire. Examiners are encouraged to suggest claim language to applicants to improve the clarity or precision of the language used, but should not reject claims or insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirement.

The essential inquiry pertaining to this requirement is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity. Definiteness of claim language must be analyzed, not in a vacuum, but in light of:

- (A) The content of the particular application disclosure;
- (B) The teachings of the prior art; and
- (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.

In reviewing a claim for compliance with 35 U.S.C. 112, second paragraph, the examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. 112, second paragraph >by providing clear warning to others as to what constitutes infringement of the patent<. See, e.g., *Solomon v. Kimberly-Clark Corp.*, 216 F.3d 1372, 1379, 55 USPQ2d 1279, 1283 (Fed. Cir. 2000). See also *In re Larsen*, No. 01-1092 (Fed. Cir. May 9, 2001) (unpublished) (The preamble of the *Larsen* claim recited only a hanger and a loop but the body of the claim positively recited a linear member. The court observed that the totality of all the limitations of the claim and their interaction with each other must be considered to ascertain the inventor's contribution to the art. Upon review of the claim in its entirety, the court concluded that the claim at issue apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. 112 paragraph 2.).

>If the language of the claim is such that a person of ordinary skill in the art could not interpret the metes and bounds of the claim so as to understand how to avoid infringement, a rejection of the claim under 35 U.S.C. 112, second paragraph would be appropriate. See *Morton Int'l, Inc. v. Cardinal Chem. Co.*, 5 F.3d 1464, 1470, 28 USPQ2d 1190, 1195 (Fed.

Cir. 1993). However, if the language used by applicant satisfies the statutory requirements of 35 U.S.C. 112, second paragraph, but the examiner merely wants the applicant to improve the clarity or precision of the language used, the claim must not be rejected under 35 U.S.C. 112, second paragraph, rather, the examiner should suggest improved language to the applicant.

For example, a claim recites "a suitable liquid such as the filtrate of the contaminated liquid to be filtered and solids of a filtering agent such as perlite, cellulose powder, etc." The mere use of the phrase "such as" in the claim does not by itself render the claim indefinite. Office policy is not to employ *per se* rules to make technical rejections. Examples of claim language which have been held to be indefinite set forth in MPEP § 2173.05(d) are fact specific and should not be applied as *per se* rules. The test for definiteness under 35 U.S.C. 112, second paragraph is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986). If one skilled in the art is able to ascertain in the example above, the meaning of the terms "suitable liquid" and "solids of a filtering agent" in light of the specification, 35 U.S.C. 112, second paragraph is satisfied. If upon review of the claim as a whole in light of the specification, the examiner determines that a rejection under 35 U.S.C. 112, second paragraph is not appropriate in the above-noted example, but is of the opinion that the clarity and the precision of the language can be improved by the deletion of the phrase "such as" in the claim, the examiner may make such a suggestion to the applicant. If applicant does not accept the examiner's suggestion, the examiner should not pursue the issue.

If upon review of a claim in its entirety, the examiner concludes that a rejection under 35 U.S.C. 112, second paragraph is appropriate, such a rejection should be made and an analysis as to why the phrase(s) used in the claim is "vague and indefinite" should be included in the Office action. If applicants traverse the rejection, with or without the submission of an amendment, and the examiner considers applicant's arguments to be persuasive, the examiner should indicate in the next Office communication that the previous rejection under 35 U.S.C. 112, second

paragraph has been withdrawn and provide an explanation as to what prompted the change in the examiner's position (e.g., examiners may make specific reference to portions of applicant's remarks that were considered to be the basis as to why the previous rejection was withdrawn).

By providing an explanation as to the action taken, the examiner will enhance the clarity of the prosecution history record. As noted by the Supreme Court in *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 122 S.Ct. 1831, 1838, 62 USPQ2d 1705, 1710 (2002), a clear and complete prosecution file record is important in that "[p]rosecution history estoppel requires that the claims of a patent be interpreted in light of the proceedings in the PTO during the application process." In *Festo*, the court held that "a narrowing amendment made to satisfy any requirement of the Patent Act may give rise to an estoppel." With respect to amendments made to comply with the requirements of 35 U.S.C. 112, the court stated that "[i]f a § 112 amendment is truly cosmetic, then it would not narrow the patent's scope or raise an estoppel. On the other hand, if a § 112 amendment is necessary and narrows the patent's scope—even if only for the purpose of better description—estoppel may apply." *Id.*, at 1840, 62 USPQ2d at 1712. The court further stated that "when the court is unable to determine the purpose underlying a narrowing amendment—and hence a rationale for limiting the estoppel to the surrender of particular equivalents—the court should presume that the patentee surrendered all subject matter between the broader and the narrower language...the patentee should bear the burden of showing that the amendment does not surrender the particular equivalent in question." *Id.*, at 1842, 62 USPQ2d at 1713. Thus, whenever possible, the examiner should make the record clear by providing explicit reasoning for making or withdrawing any rejection related to 35 U.S.C. 112, second paragraph.<

2173.03 Inconsistency Between Claim *>and< Specification Disclosure or Prior Art [R-1]

Although the terms of a claim may appear to be definite, inconsistency with the specification disclosure or prior art teachings may make an otherwise definite claim take on an unreasonable degree of uncertainty. *In re Cohn*, 438 F.2d 989, 169 USPQ 95

(CCPA 1971); *In re Hammack*, 427 F.2d 1378, 166 USPQ 204 (CCPA 1970). In *Cohn*, the claim was directed to a process of treating a surface with a corroding solution until the metallic appearance is supplanted by an "opaque" appearance. Noting that no claim may be read apart from and independent of the supporting disclosure on which it is based, the court found that the description, definitions and examples set forth in the specification relating to the appearance of the surface after treatment were inherently inconsistent and rendered the claim indefinite.

2173.04 Breadth Is Not Indefiniteness

Breadth of a claim is not to be equated with indefiniteness. *In re Miller*, 441 F.2d 689, 169 USPQ 597 (CCPA 1971). If the scope of the subject matter embraced by the claims is clear, and if applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. 112, second paragraph.

Undue breadth of the claim may be addressed under different statutory provisions, depending on the reasons for concluding that the claim is too broad. If the claim is too broad because it does not set forth that which applicants regard as their invention as evidenced by statements outside of the application as filed, a rejection under 35 U.S.C. 112, second paragraph would be appropriate. If the claim is too broad because it is not supported by the original description or by an enabling disclosure, a rejection under 35 U.S.C. 112, first paragraph would be appropriate. If the claim is too broad because it reads on the prior art, a rejection under either 35 U.S.C. 102 or 103 would be appropriate.

2173.05 Specific Topics Related to Issues Under 35 U.S.C. 112, Second Paragraph [R-1]

The following sections are devoted to a discussion of specific topics where issues under 35 U.S.C. 112, second paragraph have been addressed. These sections are not intended to be an exhaustive list of the issues that can arise under 35 U.S.C. 112, second paragraph, but are intended to provide guidance in areas that have been addressed with some frequency in recent examination practice. The court and Board